D. NUTRITION RISK FACTORS

Overview

Introduction

Nutrition risk factors (NRFs) that may be assigned to WIC applicants are defined in this section. When determining eligibility, the CPA must identify and assign all NRF for which an applicant qualifies. Based on NRFs assigned, the participant will be placed at the highest possible priority. Nutrition education should be based upon the assigned risk factors.

In this section

In this section you will find the following information.

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Utah Nutrition Risk Factor Reference Sheet

High Risk	NRF #	Description	Priority					Auto Assign	No Regression
			P	B	N	I	C		
BMI < 18	101	Prepregnancy Underweight	1					X	X
B	102	Postpartum Underweight		1	4			X	
≤5th	103	Underweight or At Risk				1	3	X	
	111	Prepregnancy Overweight	1					X	X
	112	Postpartum Overweight		1	4			X	
	113	Overweight (Children Age 2-5)					3	X	
	114	At Risk of Overweight				1	3	partial	
	121	Length/Height ≤ 10th				1	3	X	
X	131	Low Maternal Weight Gain	1						X
X	132	Wt Loss During Pregnancy	1					P partial	X
P	133	High Maternal Weight Gain	1	1	4			B & N only	X
X	134	Failure to Thrive				1	3		
X	135	Inadequate Growth				1	3		
X	141	Low Birth Weight				1		X	X
	142	Prematurity				1		X	X
X	151	Small for Gestational Age				1		X	X
X	152	Head Circumference < 5th				1		X	
	153	Large for Gestational Age				1		X	X
3% below	201	Low Hematocrit	1	1	4	1	3	X	
	211	Elevated Blood Lead Level	1	1	4	1	3	X	
X	301	Hyperemesis Gravidarum	1						X
X	302	Gestational Diabetes	1						X
	303	Hx Gestational Diabetes	1	1	6				
	311	Hx of Preterm Delivery	1	1	6				
	312	Hx of Low Birthweight	1	1	6				
	321	Hx of Fetal/Neonatal Loss	1	1	6				
P & < 16	331	Pregnancy < 18 yr. at conception	1	1	4			X	
	332	Close Spaced Pregnancies	1	1	4			X	
P	333	High Parity and Young Age	1	1	4				
	334	Lack of Prenatal Care	1						X
P, B	335	Multifetal Gestation	1	1	4			B & N only	X
X	336	Fetal Growth Restriction	1						
	337	Hx of Birth of LGA Infant	1	1	6			B & N only	
	338	Pregnant and Currently BF	1					X	
X	341	Nutrient Deficit Disease	1	1	4	1	3		
X	342	GI Disorders	1	1	4	1	3		
X	343	Diabetes Mellitus	1	1	4	1	3		
B	344	Thyroid Disorders	1	1	6	1	3		
P	345	Hypertension	1	1	6	1	3		
X	346	Renal Disease	1	1	4	1	3		
X	347	Cancer	1	1	4	1	3		
	348	CNS Disorder	1	1	6	1	3		
	349	Congenital Disorders	1	1	6	1	3		

	350	Pyloric Stenosis				1			
X	351	Metabolic Inborn Errors	1	1	4	1	3		

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Utah Nutrition Risk Factor Reference Sheet, Continued

High Risk	NRF #	Description	Priority					Auto Assign	No Regression
			P	B	N	I	C		
	352	Infectious Diseases	1	1	6	1	3		
	353	Food Allergies	1	1	6	1	3		
	354	Celiac Disease	1	1	6	1	3		
	355	Lactose Intolerance	1	1	6	1	3		
	356	Hypoglycemia	1	1	6	1	3		
	357	Drug Nutrient Interaction	1	1	6	1	3		
P, B	358	Eating Disorders	1	1	6				
	359	Surgery, Trauma, Burns	1	1	6	1	3		
	360	Other Medical Conditions	1	1	6	1	3		
	361	Depression	1	1	6		3		
	362	Developmental Delays	1	1	6	1	3		
	371	Maternal Smoking	1	1				X	
P	372a	Alcohol Use	1	1	6			X	
P	372b	Illegal Drug Use	1	1	6				
	381	Dental Problems	1	1	6	1	3		gingivitis of Preg.
X	382	Fetal Alcohol Syndrome				1	3		
C	402	Vegan Diets	4	4	6	4	5		
	411	Inappropriate Feeding (I)				4			
	412	Early Intro Solid Foods				4			
	414	Low Iron Intake≥ 6 month				4			
	415	Improper Formula Dilution				4			
	417	Poor Bottle Sanitation				4			
	419	Tooth Decay Risk-Bottle				4	5		
	420	Excessive Caffeine Intake		4					
	421	Pica	4	4	6		5		
	422	Diet, Inappropriate	4	4	6	4	5		
	423	Excessive Herb/Supplement Use	4	4	6	4	5		
	424	Inadequate Vitamin/Mineral	4			4	5		
	425	Inappropriate Feeding (C)					5		
	426	Inadequate Folic Acid Intake		4	6				
	501	Possibility of Regression		7	7	7	7		X
	502	Transfer of Certification							X
	601a	BF Mom of Infant-Prior 1		1					X
	601b	BF Mom of Infant-Prior 2		2					X
	601c	BF Mom of Infant-Prior 4		4					X
X	602	BF Complications - Women		1					
X	603	BF Complications - Infant				1			
	701	Mom on WIC/Not on WIC				2			X
	702a	BF Infant of Mom-Prior 1				1			X
	702b	BF Infant of Mom-Prior 2				2			X
	702c	BF Infant of Mom-Prior 4				4			X
	703	Mom w/Ment Prob/Sub Use-I				1			
	801	Homelessness	4	4	6	4	5	X	

	802	Migrancy	4	4	6	4	5	X	
	901	Environmental Risk	4	4	6	4	5		
	902	Guardian-Lmt'd Fdg Skills	4	4	6	4	5		
	903	Foster Care	4	4	6	4	5		

101 Prepregnancy Underweight

Definition/ cut-off value

Prepregnancy Body Mass Index (BMI) < 19.8.

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	BMI < 18.0

Documentation

Enter participant's self declared prepregnancy weight in screen 103.
Enter height in screen 104.
Record prepregnancy weight on prenatal weight gain grid.
Record prepregnancy BMI from screen 104 onto prenatal weight grid or plot on back of grid.
NRF #101 auto assigned by UWIN.
If BMI < 18.0, document High Risk Care Plan in participant's chart.

Suggested components to assess:

- weight gain pattern
- dietary/caloric intake
- physical activity level

RD must document management of care plan

Document referrals in screen 106.
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Will be auto assigned if prepregnancy BMI is < 19.8.
Will be auto assigned as high risk if prepregnancy BMI is < 18.

Continued on next page

101 Prepregnancy Underweight, Continued

Counseling guidelines

Explain participant's BMI in relation to normal BMI.
Explain amount and pattern for recommended weight gain:
- set realistic, short-term, weight gain goals with participant

Explain recommended calorie intake for optimal weight gain during pregnancy.
- review Food Guide Pyramid
- tailor food package to include increased cheese, whole milk, and/or monthly issuance of peanut butter, if appropriate (document tailoring)

Encourage moderate, but not excessive, exercise.
Inform of risks to infant:
- low birth weight
- fetal growth restriction
- perinatal mortality

Inform of risks to mother:
- antepartum hemorrhage
- premature rupture of membranes
- anemia
- endometritis
- cesarean delivery

Suggested handouts

To the Pregnant Woman Who is Not Gaining Enough Weight
What To Eat When You Are Pregnant
Daily Food Guide - Expectant

Follow up and assessment guidelines

Weight gain plotted and assessed at each clinic visit.
If BMI < 18.0, individual assessment with Registered Dietitian.
- reassess weight gain:
  - if weight gain is poor, more intense follow-up may be needed
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

If BMI $\geq$ 18.0, appropriate nutrition education at each visit.

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101 Prepregnancy Underweight, Continued

Justification

Women with low prepregnancy weight-for-height are at a higher risk for delivery of low birth weight (LBW) infants, fetal growth restriction, and perinatal mortality. Prepregnancy underweight is also associated with a higher incidence of various pregnancy complications such as antepartum hemorrhage, premature rupture of membranes, anemia, endometritis, and cesarean delivery.

Justification for high risk

Because she is beginning her pregnancy underweight, she is at increased risk of having a low weight gain during pregnancy. WIC can provide individual counseling on diet and weight gain, helping the participant gain an appropriate amount of weight, and increasing the baby's birth weight.

References

1) Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 70-73.

2) Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

102 Postpartum Underweight

Definition/ cut-off value

Current postpartum Body Mass Index (BMI) <19.8.

Participant category and priority level

Category	Priority	High Risk
Breastfeeding	I	Y
Postpartum	IV	N

Documentation

Enter weight and height in screen 104.
Postpartum BMI will be displayed in screen 104.
NRF #102 auto assigned by UWIN.
If breastfeeding, document High Risk Care Plan in participant's chart.
Suggested components to assess:

- dietary/caloric intake
- physical activity level
- environmental conditions which may contribute to poor dietary intake
- maternal health

RD must document management of care plan
Document referrals in screen 106.
If breastfeeding, schedule appropriate nutrition education or individual contact at next visit.
Refer to Lactation Educator, if needed.
If postpartum, schedule for appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if postpartum BMI is < 19.8.
Will be auto assigned as high risk if breastfeeding woman and postpartum BMI is < 19.8.

Continued on next page

102 Postpartum Underweight, Continued

Counseling guidelines

Explain participant's BMI in relation to normal BMI.
Explain recommended calorie intake for healthy weight and milk production:
- review Food Guide Pyramid
- encourage minimum intake of 1,800 kcal/day for breastfeeding women
- tailor food package to include increased cheese, whole milk, and/or monthly issuance of peanut butter (document tailoring)

Encourage moderate, but not excessive, exercise.
Discuss environmental factors which may influence weight:
- eating disorders
- depression
- financial insecurities
- lack of support from family and friends

Review maternal health conditions.

Suggested handouts

Daily Food Guide - Postpartum/Breastfeeding
After You Deliver
I'm Breastfeeding - What Should I Eat?
How to Have A Good Breast Milk Supply

Follow up and assessment guidelines

If breastfeeding, individual assessment with a Registered Dietitian.
- reassess weight status
- reassess dietary/caloric intake
- assess compliance with recommendations
- assess environmental factors
- document if participant followed through on referrals

If postpartum, appropriate nutrition education at each visit.

Justification

Low maternal weight for height during the postpartum period may indicate poor energy stores, the lack of replenishment of maternal nutrient stores that were mobilized during pregnancy, or that a mother is not consuming an adequate amount of food to meet her energy needs. Maternal underweight after delivery can be an indicator of poor maternal health or environmental stress.

Continued on next page

102 Postpartum Underweight, Continued

Justification for high risk

A breastfeeding woman who is underweight has lower fat stores, placing her at higher nutritional risk. Supplemental foods and individual dietary assessment will improve her ability to feed her baby.

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 89-92.

2. Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

103 Underweight or At Risk of Becoming Underweight

Definition/ cut-off value

≤ 10th percentile Body Mass Index (BMI)*, or ≤ 10th percentile weight for length.

*Based on National Center for Health Statistics/Centers for Disease Control and Prevention (2000) age/sex specific growth charts.

Participant category and priority level

Category	Priority	High Risk
Infants	I	≤ 5th %
Children	III	≤ 5th %

Documentation

Enter current weight and length/height in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot measurement on approved growth chart:
1. < 2 years of age: weight for length on Birth to 36 Month Growth Chart
2. ≥ 2 years of age: BMI for age on 2-20 Year Growth Chart

NRF #103 auto assigned by UWIN.
If weight for length or BMI is ≤ 5th percentile, document High Risk Care Plan in participant's chart.

Suggested components to assess:
- dietary/caloric intake
- growth pattern
- parental body composition
- recent illnesses that may affect weight status
- developmental delays which may affect dietary intake

RD must document management of care plan

Document referrals in screen 106.
If weight for length or BMI is = 5th percentile, schedule appropriate nutrition education or individual counseling at next visit.
If weight for height is > 5th percentile, schedule appropriate nutrition education at next visit.

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103 Underweight or At Risk of Becoming Underweight, Continued

Parameters for auto assign

Will be auto assigned if weight for length or BMI for age is = 10th percentile.
Will be auto assigned as high risk if weight for length or BMI is = 5th percentile.

Counseling guidelines

Explain participant's weight for length or BMI in relation to other infants/children of the same age and gender.
Explain pattern for expected growth (following normal growth curve).
Discuss issues which may affect participant's weight status:
- parental body composition
- recent illnesses
- developmental delays

Review current dietary intake and meal pattern.
Review diet and meal/snack patterns appropriate for age.
Review division of responsibility in food regulation:
- parents are responsible for what and when food is served
- children are responsible for what and how much they eat

Provide ideas for increasing calories if needed:
- set realistic, short-term goals with parent
- tailor food package to include increased cheese, whole milk, and/or peanut butter, if appropriate (document tailoring)

Refer to health care provider, if needed.

Suggested handouts

Infant Feeding Guide
The First 12 Months
Daily Food Guide - Children
Smack Your Lips Snack Ideas
Is My Child Gaining Enough Weight?
How Much Is Enough For My Child?

Continued on next page

103 Underweight or At Risk of Becoming Underweight, Continued

Follow up and assessment guidelines

If weight for length or BMI for age is = 5th percentile, individual assessment with a Registered Dietitian.

- reassess growth (weight, height, weight for length or BMI)
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

If weight for length or BMI > 5th percentile, appropriate nutrition education at each visit.

Justification

The Centers for Disease Control and Prevention (CDC) uses the cut-off of the 5th percentile weight for length or height to define underweight for purposes of their Pediatric Nutrition Surveillance System. However, the CDC does not have a position regarding the cut-off percentile for underweight which should be used to determine nutritional risk.

A survey of articles and texts addressing weight for length or stature cut-off percentiles reveals that: a) many children less than the 5th percentile are in need of nutritional intervention, and b) many authors also view a child at = 10th percentile as at nutritional risk and in need of preventive nutritional intervention, or at least further evaluation. The 10th percentile is chosen as a cut-off for WIC purposes in accord with the preventive emphasis of this program.

While progress along the 10th percentile of weight for length or height may represent normal growth for some children, it may also be an indication of inadequate caloric intake and of an associated inadequate nutrient intake.

A child suffering from chronic malnutrition can have a weight for length or stature above the 10th percentile, because linear growth has also been stunted. Weight for length or stature < 10th percentile is most useful for identifying acute undernutrition in which length or stature is less affected.

Mortality rates and morbidity from infections and diarrheal diseases are increased in undernourished children. Child participation in WIC has been associated with improved growth in both weight and height.

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103 Underweight or At Risk of Becoming Underweight, Continued

Justification for high risk

A child whose weight for height is = 5th percentile is universally recognized as underweight and in need of nutrition intervention. The WIC nutritionist can help improve the nutritional status of this child by providing individual counseling and food package tailoring.

References

1. FNIC: Update of Analysis of Literature Regarding Cut-off Percentiles for Low Weight for Length in Infants; February 5, 1991.

2. Grand RJ, Stupen JL, and Dietz WH: Pediatric Nutrition: Theory and Practice. Boston, Mass: Butterworth Publishers, 1987.

3. Hamill, PVV, Drizard, TA, et al. Physical Growth: National Center for Health Statistics Percentiles. American Journal Clin. Nutr.; 1979; 32:607-629.

4. Journal of the American Dietetics Association: Nutrition Services: A Literature Review; April 1989; Supplement vol. 89(4); s-13, s-19.

5. Kempe, Silver, O'Brien and Fuginiti: Current Pediatric Diagnosis and Treatment; Lange; 9th edition; 1987; p. 903.

6. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics; no 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.

7. Pipes PL, Trahms CM. Nutrition: Growth and Development. In Pipes PL and Trahms CM, ed. Nutrition in Infancy and Childhood 6th edition; WCB/McGraw-Hill; 1997.

8. Wright JA, Ashenburg CA, Whitaker RC. Comparison of methods to categorize undernutrition in children. J Pediatr. 1994;124: 944-946.

111 Prepregnancy Overweight

Definition/ cut-off value

Prepregnancy Body Mass Index (BMI) = 26.1**.**

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	N

Documentation

Enter participant's self declared prepregnancy weight in screen 103.
Enter height in screen 104.
Record prepregnancy weight on prenatal weight gain grid.
Record prepregnancy BMI from screen 104 onto prenatal weight grid or plot on back of grid.
NRF #111 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if prepregnancy BMI is = 26.1.

Continued on next page

111 Prepregnancy Overweight, Continued

Counseling guidelines

Explain participant's BMI in relation to normal BMI.
Explain amount and pattern for recommended weight gain:
- set realistic, short-term weight gain goals with participant

Explain calorie intake and diet emphasizing nutritious food choices.
- encourage well-balanced diet including all areas of the Food Guide Pyramid
- encourage consumption of moderate amounts of nutritious foods and sufficient quantity of essential nutrients
- emphasize avoiding calorie-rich foods
- tailor food package to exclude cheese, encourage use of skim/lowfat milk, and/or include monthly issuance of beans

Explain benefits of physical activity:
- set short-term goals with the participant

Inform of increased risks:
- diabetes mellitus
- hypertension
- blood clots
- preterm birth
- macrosomia
- difficult labor
- complications with C-Section

Suggested handouts

Daily Food Guide - Expectant
What to Eat When You Are Pregnant
Give Your Baby the Best - Breastfeed

Follow up and assessment guidelines

Weight gain plotted and assessed at each clinic visit.
Appropriate nutrition education at each visit.

Continued on next page

111 Prepregnancy Overweight, Continued

Justification

Women who are overweight at conception have increased obstetric risks. Increased maternal prepregnancy weight is associated with increased risks for diabetes mellitus, hypertension, thromboembolic complications, preterm births, macrosomia, dysfunctional labor, and complications in operative deliveries (2, 3).

Because obesity usually results from the ingestion of an excessive number of calories rather than nutrients, the obese patient may be more malnourished than underweight women (2). The goal in prenatal nutritional counseling provided by WIC is to achieve recommended weight gain by emphasizing food choices of high nutritional quality, particularly those foods high in folic acid, which are important in the prevention of neural tube defects, as well as by avoiding unnecessary calorie-rich foods, thereby minimizing further risks associated with increased obesity (4, 5). The WIC CPA is in an excellent position to remind participants that moderate physical activity and exercise also play a significant role in minimizing such risks.

Justification for high risk

Not applicable

Continued on next page

111 Prepregnancy Overweight, Continued

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 80-84.

2. Cefalo, R.C. and Moos, M.K.: Preconceptional Health Promotion: A Practical Guide; Aspen Publishers; 1988; pp. 89-90.

3. Naye, R.L.: Maternal body weight and pregnancy outcome. American Journal Clin. Nutr.; 1990; 52:273-279.

4. Worthington-Roberts, BS and Williams, SR: Nutrition During Pregnancy and Lactation; 1989; p. 109.

5. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990; p. 12.

6. Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

112 Postpartum Overweight

Definition/ cut-off value

Current postpartum Body Mass Index (BMI) = 26.1.

Participant category and priority level

Category	Priority	High Risk
Breastfeeding	I	N
Postpartum	IV	N

Documentation

Enter weight and height in screen 104.
Postpartum BMI will be displayed in screen 104.
NRF #112 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if postpartum BMI is = 26.1.

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112 Postpartum Overweight, Continued

Counseling guidelines

Explain participant's BMI in relation to normal BMI.
Explain benefits of achieving and maintaining a healthy body weight.
Explain benefits of physical activity:
- set small, short-term achievable goals with the participant
- set goals for exercise that can be achieved as a family

Explain amount and pattern for a healthy weight loss:
- assess where participant is emotionally regarding willingness to lose weight
- emphasize weight loss should be slow and gradual
  - no more than 4 lbs/mo after the first month postpartum if breastfeeding

Explain calorie intake and diet emphasizing food choices:
- encourage well-balanced diet including all areas of the Food Guide Pyramid
- encourage consumption of moderate amounts of nutritious foods and sufficient quantity of essential nutrients
- emphasize avoiding calorie-rich foods
- tailor food package to exclude cheese, encourage use of skim/lowfat milk, and/or include monthly issuance of beans
- a breastfeeding woman needs to consume at least 1,800 calories

Suggested handouts

Daily Food Guide - Postpartum/Breastfeeding
I'm Breastfeeding - What Should I Eat?
After You Deliver
Bean Cuisine
Vegetable Delights

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Continued on next page

112 Postpartum Overweight, Continued

Justification

Overweight status is associated with increased risks for a number of diseases such as diabetes mellitus, hypertension, gall bladder disease and cardiovascular disease. The postpartum and interconceptional periods are opportune times to focus on achieving and maintaining a healthy body weight.

Because obesity usually results from the ingestion of an excessive number of calories rather than nutrients, the obese patient may be malnourished (2). The goal in nutritional counseling is to achieve recommended weight gain by emphasizing food choices of high nutritional quality, and avoiding unnecessary calorie-rich foods, thereby minimizing further risks associated with increased obesity (4, 5). The WIC CPA is in an excellent position to remind participants that moderate physical activity and exercise also play a significant role in minimizing such risks.

Women who are overweight at their next conception will have increased obstetric risks. Increased maternal prepregnancy weight is associated with increased risks for gestational diabetes, pregnancy-associated hypertension, thromboembolic complications, preterm births, macrosomia, dysfunctional labor, and complications in operative deliveries (2, 3).

Justification for high risk

Not applicable

Continued on next page

112 Postpartum Overweight, Continued

References

1. Cefalo, R.C. and Moos, M.K.: Preconceptional Health Promotion: A Practical Guide; Aspen Publishers; 1988; pp. 89-90.

2. Naye, R.L.: Maternal body weight and pregnancy outcome; Am. J. Clin. Nutr.; 1990; 52; pp. 273-279.

3. Worthington-Roberts, B.S. and Williams, S.R.: Nutrition During Pregnancy and Lactation; 4th edition; Times-Mirror/Mosby College Publishing; 1989; p. 109.

4. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990; p. 12.

5. Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

6. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 92-96.

113 Overweight (Children 2-5 Years of Age)

Definition/ cut-off value

= 24 months to 5 years of age and = 95th percentile Body Mass Index (BMI)*

* Based on National Center for Health Statistics/Centers for Disease Control and Prevention (2000) age/sex specific growth charts.

Participant category and priority level

Category	Priority	High Risk
Children (= 24 months of age)	III	N

Documentation

Enter mom's ID# and answer "yes" to "Mom on WIC" in screen 105 in infant record.
Enter weight and height in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot measurement on approved growth chart:
- = 2 years of age: BMI for age on 2-20 Year Growth Chart

NRF #113 assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if BMI for age is = 95th percentile.

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113 Overweight (Children 2-5 Years of Age), Continued

Counseling guidelines

Explain participant's BMI in relation to other infants/children of the same age and gender.
Explain pattern for expected growth (following normal growth curve).
Discuss issues which may affect participant's weight status:

- parental body composition
- family eating patterns and eating habits
- cultural practices and values
- social/emotional issues related to food
- force feeding
- snacking habits
- time spent watching television
- excessive intake of high calorie beverages

Review current dietary intake and meal pattern.
Review diet and meal/snack patterns appropriate for age.
Explain goal is to help infant/child achieve the recommended rate of growth, not to "put the child on a diet."
Provide ideas to help parents choose nutritious foods and avoid high calorie/low nutrient foods:

- set realistic, short term goals with parent
- tailor food package to exclude cheese, encourage use of skim/lowfat milk, and/or include monthly issuance of beans

Review division of responsibility in food regulation:

- parents are responsible for what and when food is served
- children are responsible for what and how much they eat

Encourage regular family exercise.
Refer to health care provider, if needed.

Suggested handouts

How Much Is Enough For My Child?
My Child Won't Eat a Balanced Diet - Is This Normal?
Daily Food Guide - Children
Infant Feeding Guide
The First 12 Months

Continued on next page

113 Overweight (Children 2-5 Years of Age), Continued

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Justification

Use of the 95th percentile to define overweight identifies those children with a greater likelihood of being overweight as adolescents and adults, with increased risk of obesity-related disease and mortality. It is recommended that an overweight child (= 95th percentile) undergo an in-depth medical assessment and careful evaluation to identify any underlying syndromes or secondary complications. Overweight can result from excessive energy intake, decreased energy expenditure, or impaired regulation of energy metabolism. In addition, overweight in early childhood may signify problematic feeding practices or evolving family behaviors that, if continued, may contribute to health risks in adulthood related to diet and inactivity.

Overweight children and their families often fell embarrassed and ashamed. Therefore, it is extremely important for WIC staff to treat these families with sensitivity, compassion, and a conviction that overweight is an important chronic medical problem that can be treated. The goal in nutritional counseling provided by WIC is to help the child achieve recommended rates of growth and development by emphasizing food choices of high nutritional quality while avoiding unnecessary or excessive amounts of calorie-rich foods and beverages.

Also, the importance of reducing inactivity (for example, decreasing sedentary TV viewing) and increasing age appropriate physical activity should be emphasized for children, with information provided to the parent/caretaker. Suggestions for increasing physical activity could include increased outdoor time as well as increased gross motor play (e.g., play-along videos or cassettes that promote physical activity).

In addition to nutrition counseling, the referral services WIC provides can greatly assist families in identifying medical providers and other services (if available) the provide the recommended medical assessments and treatment when necessary.

Continued on next page

113 Overweight (Children 2-5 Years of Age), Continued

Justification for high risk

Not applicable

References

1. Barlow SE, Deitz WH. Obesity Evaluation and Treatment: Expert Committee Recommendations. PEDIATRICS, 1998, Vol. 102 No. 3.

2. Hamill, PVV, Drizard, TA, et al.: Physical Growth: National Center for Health Statistics Percentiles. American Journal Clin. Nutr.; 1979; 32:607-629.

3. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 118-122.

4. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics;
5. no. 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.

6. Whitaker, Robert C., J.A. Wright, M.S. Pepe, K.D. Seidel, W.H. Dietz. Predicting Obesity in Young Adulthood from Childhood and Parental Obesity. NEJM, Vol 337, No 13, September 25, 1997. pgs 869-973.

114 At Risk of Becoming Overweight (Infants and Children)

Definition/ cut-off value

Having one or more risk factors for being at-risk of becoming overweight. The risk factors are limited to:

- Being = 24 months of age and = 85th and < 95th percentile Body Mass Index (BMI) *

- Being < 12 months of age and born to a woman who was obese (BMI = 30) at the time of conception or at any point in the first trimester of the pregnancy.
  - BMI based on self reported, by the mother, prepregnancy weight and height, **or**
  - Measured weight and height documented by staff or other health care provider

- Being = 12 months of age and having a biological mother who is obese (BMI = 30) at the time of the child's certification.
  - BMI based on self reported, by the mother, weight and height, **or**
  - Weight and height measurements taken by staff at the time of certification.

  Note: If mother is pregnant or has had a baby within the past 6 months, use prepregnancy weight to assess for obesity

- Being an infant or child and having a biological father who is obese (BMI = 30) at the time of the child's certification.
  - BMI must be based on self reported, *by the father*, weight and height, **or**
  - Weight and height measurements taken by staff at time of certification

* Based on National Center for Health Statistics/Centers for Disease Control and Prevention (2000) age/sex specific growth charts.

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

Participant category and priority level

Category	Priority	High Risk
Infants	I	N
Children	III	N

Documentation

Enter weight and height in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot measurement on approved growth chart:
- = 2 years of age: BMI for age on 2-20 Year Growth Chart

NRF #114 auto assigned if ≥ 24 months of age and BMI is ≥ 85 and < 95 percentile
Enter #114 in screen 106 if biological parent is obese.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if ≥ 24 months of age and BMI is ≥ 85 and < 95 percentile.
- Will be auto assigned "Mom on WIC" is marked in screen 105 in infant record AND
- if < 12 months of age and mother has a BMI ≥ 30 at time of conception.

Must be manually assigned if biological parent is obese and meet above criteria.

Counseling guidelines

Explain participant's BMI for age in relation to other children of the same age and gender.
Assess readiness to make changes: A weight-maintenance program for a parent or an adolescent who is not ready to change may be futile or even harmful.
- Ask how concerned is the family about the weight of the family member
- Ask whether they believe weight maintenance is possible
- Ask what practices need to be changes, i.e. activity patterns, diet, etc.

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

Counseling guidelines, continued

If the family is not ready to make a change:

- give information on the health consequences of obesity (medical complication of obesity)
- tell them that help is available when they are ready
- keep a positive relationship so it will be possible to help them when they are ready
- encourage, empathize, and don't criticize

If the family is ready to make a change:

- explain weight gain goals
- explain pattern for expected growth (following normal growth curve)
- first step in weight control for most overweight children < 2 years is weight maintenance of baseline weight
- weight goals can be achieved through modest changes in diet and activity
- avoid short term diets or physical activity programs that promote rapid weight loss and that do not promote long term changes
- let them pick one or two goals they want to work on, start slow and help them to monitor the changes and stick to them
    - Suggested Diet Behavior goals are:
        - healthy eating habits
        - encourage eating three meals per day and snacking less than three times per day
        - encourage a modest reduction in fat in the family's diet (don't restrict fat in children less than 2 years of age)
        - encourage the appropriate use of low fat and non fat milk after the age of 2
        - limit the consumption of high sugar foods like soda pop and juice
        - do not forbid sweets and desserts. Serve in moderation
        - be aware of portion sizes, especially high fat and high sugar foods
        - limit the frequency of fast food meals
        - encourage eating a variety of foods by introducing new foods often
        - encourage the entire family to drink more water
        - be a positive role model

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

Counseling guidelines, continued

- Suggested Activity Behavior goals are:
  - gradually change the entire family's eating habits and physical activity rather than focus on the child
  - increase physical activity. Plan physical activities that the whole family enjoys
  - reduce sedentary lifestyle
  - reduce the time in front of the TV. Limit TV and computer games to 1 to 2 hours per day
  - involve the kids in team sports
  - teach and model attitudes toward food and physical activity without emphasizing body weight
  - be a positive role model
- Prevention of overweight in infants:
  - breastfeed
  - learn the baby's hunger cues and feed when hungry
  - watch sucking pattern and allow baby to slow and stop the feeding (don't force the baby to finish the bottle or other foods)
  - do not add cereal to the bottle
  - feed baby according to Infant Feeding Recommendations

Suggested handouts

How Much Is Enough For My Child?
My Child Won't Eat a Balanced Diet - Is This Normal?
Daily Food Guide - Children
Infant Feeding Guide
The First 12 Months

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

Justification

The rise in the prevalence of overweight in children and adolescents in the United States is one of the most important public health issues we face today. National surveys from the mid-1960s to the early 1990s document a significant increase in overweight among children from preschool age through adolescence. These trends parallel a concurrent increase in obesity among adults, suggesting that fundamental shifts are occurring in dietary and/or physical activity behaviors that are having an adverse effect on overall energy balance.

Specific reasons for the rapid rise in obesity in the United States are not well understood. Important contributors include a large and growing abundance of calorically dense foods and an increased sedentary lifestyle for all ages. Evidence from recent scientific studies has shown that obesity tends to run in families, suggesting a genetic predisposition. However, a genetic predisposition does not inevitably result in the development of obesity. Environmental, social and other factors mediate the relationship.

In any individual, and in the same individual at different times of life, the relative influence of genetics, environment, and development may vary. In other words, individuals with an otherwise genetic predisposition to obesity still may be lean in an environment of food scarcity or high demand for physical activity; while individuals not genetically predisposed may become obese in an environment that encourages over-consumption (especially of calorically dense foods) and includes few inducements to physical activity.

Children 2 years of age and older with a BMI at the 85th-94th percentile are at risk of overweight while those with a BMI at or above the 95th percentile are overweight. Adults with a BMI greater than or equal to 30 are obese while those with a BMI at or greater than 40 are classified as extremely obese.

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

Justification (continued)

Increasingly, attention is being focused on the need for comprehensive strategies that focus on preventing overweight/obesity and a sedentary lifestyle for all ages. Scientific evidence suggests that the presence of obesity in a parent greatly increases the risk of overweight in preschoolers, even when no other overt signs of increasing body mass are present.

The WIC Program has the opportunity to become an important player in public health efforts to curb the increasing spread of obesity by actively identifying and enrolling infants and children who may be at-risk of becoming overweight in childhood or adolescence, and assisting them and their families in making dietary and lifestyle changes necessary to reduce their risk factors. The issue of a child being at risk of overweight may cause some families to feel embarrassed; therefore, it is extremely important for WIC staff to treat these families with sensitivity and compassion. Appropriate nutrition education emphasizing the importance of prevention (addressing both feeding/eating behaviors and physical activity), food choices within the food prescriptions, and appropriate referrals provided through WIC would benefit not only the at-risk infants and children, but also their families.

For this criterion, the definition of parental obesity (BMI $\geq$ 30) applies to all parents, regardless of age (teen and adult). Although there are recommended obesity BMI cut-point specific for sex and age 2 – 18 year old (see reference #3), there is only a slight difference between these cut-points and the ones used to define obesity for an individual over 18 years of age. Based on the slight differences in cut-points and lack of research suggesting otherwise, RISC elected to use a single definition of parental obesity for ease in applying these criterion.

Justification for high risk

Not applicable

114 At Risk of Becoming Overweight (Infants and Children), Continued

References

1. Barlow, Sarah E. and William H. Deitz. Obesity Evaluation and Treatment: Expert Committee Recommendations. Pediatrics Vol. 102 No. 3 September 1998.

2. Clinical Guidelines on the Identification, Evaluation, and treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, national Institutes of Health. NIH Publication NO. 98-4083 http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm

3. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ. 2000; 320:1-6.

4. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vitaland health statistics; no. 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.

5. Mokdad, A.H., M.K. Serdula, W.H. Deitz, B.A. Bowaman, J.S. Marks, and J.P. Kaplan. The Spread of the Obesity Epidemic in the United States, 1991-1998. JAMA. October 27, 1999. pgs 1519-1522.

6. Report from Robert C. Whitaker, MD, MPH. Associate Professor of Pediatrics, University of Cincinnati College of Medicine to RISC. October 1999.

7. Silverman, Bernard L. et al. Long Term Effects of the Intrauterine Environment. The Northwestern University Diabetes in Pregnancy Center. Diabetes Care, Volume 21, Supplement 2, August 1998. pgs B142-B148.

8. The Causes and Health Consequences of Obesity in Children and Adolescents. Supplement to Pediatrics. American Academy of Pediatrics. March 1998. Volume 101, Number 3, part 2 of 2.

9. Whitaker, Robert C., J.A. Wright, M.S. Pepe, K.D. Seidel, W.H. Dietz. Predicting Obesity in Young Adulthood from Childhood and Parental Obesity. NEJM, Vol 337, No 13, September 25, 1997. pgs 869-873.

Continued on next page

114 At Risk of Becoming Overweight (Infants and Children), Continued

References, continued

10. Anjali J, Sherman S, Chamberlin L, Carter Y, Powers S, Whitaker R. Why Don't Low-Income Mother Worry About Their Preschoolers Being Overweight? Pediatrics Vol. 107, No. 5. May 2001. Pgs 1138-1146
11. Story M., Holk K, Sofka D. Bright Futures in Practice: Nutrition. Arlington, VA, National Center for Education on Maternal and Child Health, 2000.
12. Worthington-Roberts B, Rodwell S. Nutrition Throughout the Life Cycle. Boston. 2000
13. Fisher J, Birch L, Smiciklas-Wright J, Picciano MF. Breastfeeding through the first year predicts maternal control in feeding and subsequent toddler energy intakes. JASDA 2000; 100:641-646.

Abbreviated Body Mass Index (BMI) Table*

Height	Inches	Weight (lbs) equal to BMI 30
4' 10"	58	143
4' 11"	59	148
5' 0"	60	153
5' 1"	61	158
5 2"	62	164
5' 3"	63	169
5' 4"	64	174
5' 5"	65	180
5' 6"	66	186
5' 7"	67	191
5' 8"	68	197
5' 9"	69	203
5' 10"	70	209
5' 11"	71	215
6' 0"	72	221
6' 1"	73	227
6' 2"	74	233
6' 3"	75	240

Source: Evidence Report of Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998. National Institutes of Health/National Heart, Lung, and Blood Institute (NHLBI). Note: a complete BMI table is available on the NHLBI website: www.nhlbi.gov/guidelines/obesity/ob_home/htm

*This table may be used to determine paternal (male or female) obesity (BMI = 30).

121 Length/Height = 10th Percentile

Definition/ cut-off value

= 10th percentile length or height for age (based on NCHS growth charts)

Participant category and priority level

Category	Priority	High Risk
Infants	I	N
Children	III	N

Documentation

Enter length or height in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot measurement on approved growth chart:
- < 2 years of age: length for age on Birth to 36 Month Growth Chart
- = 2 years of age: height for age on 2-20 Year Growth Chart

NRF #121 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if length/height is = 10th percentile.

Continued on next page

121 Length/Height ≤ 10th Percentile, Continued

Counseling guidelines

Refer to health care provider if needed.
Explain participant's length (< 2 years) or height (= 2 years) in relation to other infants/children of the same gender.
Explain pattern for expected growth (following a normal growth curve).
Discuss issues which may affect participant's growth:

- caloric intake and quality of the diet
  - poverty and food insecurity
  - inadequate knowledge of appropriate diet
  - child neglect or abuse
- illnesses or diseases which could affect growth
- prematurity and birth weight
- parental stature (mother's height may be best indicator)
- cultural background (black and possibly Asian)
- altitude

Review current dietary intake and meal pattern

- look for deficiencies in calories, protein (particularly animal protein), zinc, vitamin A, iron, copper, iodine, calcium, and phosphorus

Review diet and meal/snack patterns appropriate for age.
If calories are inadequate, tailor food package to include increased cheese, whole milk and/or monthly issuance of peanut butter (document tailoring).

Suggested handouts

Infant Feeding Guide
The First 12 Months
Daily Food Guide - Children
Smack Your Lips Snack Ideas
How Much Is Enough For My Child?

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Continued on next page

121 Length/Height ≤ 10th Percentile, Continued

Justification

Abnormal short stature in infants and children is widely recognized as a response to a limited nutrient supply at the cellular level. The maintenance of basic metabolic functions takes precedence, and resources are diverted from linear growth (1). Short stature is related to the lack of total dietary energy and to a poor quality of diet; a diet that provided inadequate protein, particularly animal protein, and inadequate amounts of micronutrients such as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorus (2).

Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and in final height under conditions of improved nutrition (3, 4).

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases.

Child participation in WIC is associated with improved growth in height as well as weight (5).

Justification for high risk

Not applicable

Continued on next page

121 Length/Height = 10th Percentile, Continued

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 104-109.

2. Hamill, PVV, Drizard, TA, et al.: Physical Growth: National Center for Health Statistics Percentiles. American Journal Clin. Nutr.; 1979;
3. 32:607-629.

4. Pipes, P: Nutrition in Infancy and Childhood; 4th Edition; St. Louis; Times-Mirror/Mosby College Publishing; 1989, pp. 1-29.

5. American Academy of Pediatrics: Pediatric Nutrition Handbook; 1985; p. 192 and Appendix A.

6. Nutrition Services: A Literature Review; J. of the Am. Diet. Assoc.; April 1989; Supplement Vol. 89(4): S-13, S-19.

131 Low Maternal Weight Gain

Definition/ cut-off value

Using an Institute of Medicine (IOM)-based weight gain grid, a pregnant woman's weight plots at any point beneath the bottom line of the appropriate weight gain range for her respective prepregnancy weight category (underweight, normal, overweight, or obese).

Note: Although the 1998 National Heart, Lung and Blood Institute (NBLBI) Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults, define adult obesity as $\geq$ 30 BMI, the IOM (1990) prepregnancy weight classifications define obese prenatal women as > 29.0 BMI. (3,4)

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	Y

Continued on next page

131 Low Maternal Weight Gain, Continued

Documentation

Enter prepregnancy weight in screen 103.
Enter height and weight in screen 104.
Record prepregnancy BMI from screen 104 onto prenatal weight gain grid or plot on back of grid.
Plot pregravid weight and current weight on weight gain grid.
Enter NRF #131 in screen 106.
Document referrals in screen 106.
Document High Risk Care Plan in chart.

Suggested components to assess:

- accuracy of EDD, prepregnancy weight, and BMI
- pattern of weight gain relative to recommended weight gain
- dietary intake
- energy expenditure
- nausea, vomiting
- dehydration/generalized edema
- food availability
- body perception
- breastfeeding

RD must document management of care plan

Schedule appropriate nutrition or individual contact at next visit.

Parameters for auto assign

Not auto assigned.
Must be manually selected.

Continued on next page

131 Low Maternal Weight Gain

Counseling guidelines

Explain pattern of recommended weight gain based on her prepregnancy BMI (show weight gain chart).

Weight gain for multifetal pregnancies see NRF #335 Multifetal Gestation weight gain chart

Pregnant women may be particularly receptive to guidance regarding behaviors that may influence the developing fetus.

Inform participant of benefits of appropriate weight gain:

- better birth weight
- lower overall risks (due to higher birth weight)
- improved energy and nutrient intake by mom provides for baby's healthy development
- improved dietary intake may include better sources of iron and folic acid which are important for healthy fetal development

Inform of consequences of poor weight gain:

- fetal growth restrictions
- smaller average birth weight
- poor neurobehavioral development
- possible increased risk of preterm delivery and shorter gestational duration

Discuss issues which may affect participant's weight gain:

- perception of body weight gain
- adequacy of food in the home
- pattern of weight gain and birth outcomes in previous pregnancies
- excessive exercise
- environmental stressors
- breastfeeding expenditure

Set short-term weight gain goals together.

Counsel on ways to improve dietary intake:

- include high calorie/nutrient dense foods
- discuss benefit of WIC foods
- tailor food package to include increased cheese, whole milk, and/or monthly issuance of peanut butter, if appropriate (document tailoring)

Continued on next page

131 Low Maternal Weight Gain, Continued

Suggested handouts

To the Pregnant Woman Who is Not Gaining Enough Weight
What to Eat When You Are Pregnant
Daily Food Guide - Pregnant

Follow up and assessment guidelines

Weight gain plotted and assessed at each clinic visit.
Individual assessment with a Registered Dietitian.

- reassess weight gain
- reinforce benefits of appropriate weight gain
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

Justification

Low maternal weight gain during the 2nd and 3rd trimesters is a determinant of fetal growth, and is associated with smaller average birth weights and an increased risk of delivering an infant with fetal growth restriction. The supplemental foods and nutrition education provided by the WIC program may improve maternal weight status and infant outcomes.

In 1990 the IOM recommended weight gain cutoffs for the 2nd and 3rd trimesters and provided "provisional" weight gain grids, but acknowledged that validated data on which to provide confident recommendations was not available. Until such data is available and used to create new maternal weight gain grids, the use of "provisional" grids (those based on the 1990 recommendations) is acceptable. (4)

Continued on next page

131 Low Maternal Weight Gain, Continued

Justification (continued)

For multiple births, both the optimal range of birth weight and the gestational age associated with the lowest morbidity is achieved earlier than for singleton births. For twins, the optimal range of birth weight is estimated to be 2,500 to 2,800 grams at 36-37 weeks and for triplets, 1,900 to 2,200 grams at 34-36 weeks. Other reports indicate that twins weighing 3,000 to 3,500 grams at birth experience minimal perinatal mortality. (2,3) Outcomes with each twin (or the average of the twin pair) weighing 2,500 grams or more have been reported for maternal weight gains of 40-45 pounds. Weight gain of 0.85 pound/week or less before 24 weeks' gestation was significantly associated with poor intrauterine growth and higher morbidity among twins, regardless of subsequent rate of gain. (6)

It has been suggested that clinical guidelines or maternal weight gain during twin gestation should be based on prepregnancy BMI, although data to support the development of such guidelines, while growing, remains scant. Weight gain should be encouraged throughout a twin gestation in underweight women, with a target gain of 1.75 pounds/week after 20 weeks' gestation. The data support a weight gain of 1.5 pounds/week for normal weight women during the second half of a twin pregnancy. (6)

Justification for high risk

Low gestational weight gain is associated with an increased risk of giving birth to a growth-retarded infant. This has important adverse consequences for subsequent somatic growth and neurobehavioral development. It also increases the risk of infant mortality. Some maternal characteristics associated with an increased risk of low gestational weight gain (< 6 lbs) occur in combination, e.g., low family income, black race, young age, unmarried status and low educational level, and are associated with short gestational duration and increased risk of premature delivery. WIC supplemental foods, nutrition education counseling, and environment for frequent monitoring of weight gain status, may improve infant outcomes.

Continued on next page

131 Low Maternal Weight Gain, Continued

References

1. Brown JE and Schlosser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term gestation. Am J Obstet Gynecol, 1990; 162:182-6.

2. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User's Manual. Atlanta, GA: CDC; 1994; page 8-3.

3. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, National Institutes of Health. NIH Publication No. 98-4083 http://www.nhlbi.nih.gov/guidelines/obesity/ob_home/htm

4. Institute of Medicine: Nutrition During Pregnancy; National Academy Press: 1990; pp. 12, 97, 107.

5. Institute of medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 73-79.

6. Suitor, CW. 1997. Maternal Weight Gain: A Report of an Expert Work Group. Arlington, VA: National Center for Education in Maternal and Child Health.

7. Williams R, Creasy R, et al. Fetal growth and perinatal viability in California. Obsete Gynecol 1982; 59: 624-32.

132 Maternal Weight Loss During Pregnancy

Definition/ cut-off value

- Any weight loss below pregravid weight during 1st trimester.

OR

- Weight loss of = 2 pounds in the 2nd or 3rd trimesters (beginning the 14th week gestation).

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	Y

Documentation

Enter participant's self-declared prepregnancy weight in screen 103.
Enter height and weight in screen 104.
Record prepregnancy BMI from screen 104 onto prenatal weight gain grid or plot on back of grid.
Plot prepregnancy weight and current weight on weight gain grid.
Enter NRF #132 in screen 106 if weight loss = 2 pounds in 2nd and 3rd trimester.
NRF #132 auto assigned by UWIN if current weight < prepregnancy weight.
Document referrals in screen 106.
Document High Risk Care Plan in participant's chart.

Suggested components to assess:

- accuracy of EDD, pregravid weight, and BMI
- pattern of weight gain relative to recommended weight gain
- dietary intake
- energy expenditure
- nausea, vomiting
- dehydration, generalized edema
- food availability
- body perception

RD must document management of care plan
Schedule appropriate nutrition education or individual contact at next visit.

Continued on next page

132 Maternal Weight Loss During Pregnancy, Continued

Parameters for auto assign

Will be auto assigned if current weight < prepregnancy weight.
Must be manually selected if weight loss of = 2 lbs in 2nd or 3rd trimester.

Counseling guidelines

Explain pattern of recommended weight gain.
Pregnant women may be particularly receptive to guidance regarding behaviors that may influence the fetus.
Inform of benefits of appropriate weight gain:
- better birth weight baby
- lower overall risks (due to higher birth weight)
- improved energy and nutrient intake by mom provides for baby's healthy development
- improved intake may include better sources of iron and folic acid which are important for healthy fetal development

Inform of consequences of poor weight gain:
- fetal growth restrictions
- smaller average birth weight
- poor neurobehavioral development
- possible increased risk of preterm delivery and shorter gestational duration

Discuss issues which may affect participant's weight gain:
- perception of body weight gain
- adequacy of food in the home
- pattern of weight gain and birth outcomes in previous pregnancies
- excessive exercise
- environmental stressors
- breastfeeding energy expenditure

Set short weight gain goals together.
Counsel on ways to improve dietary intake:
- include high calorie/nutrient dense foods:
- discuss benefit of WIC foods
- tailor food package to include increased cheese, whole milk, and/or monthly issuance of peanut butter, if appropriate (document tailoring)

Continued on next page

132 Maternal Weight Loss During Pregnancy, Continued

Suggested handouts

To the Pregnant Woman Who is Not Gaining Enough Weight
What to Eat When You Are Pregnant
Daily Food Guide - Pregnant

Follow up and assessment guidelines

Weight gain plotted and assessed at each clinic visit.
Individual assessment with a Registered Dietitian.

- reassess weight gain
- reinforce benefits of appropriate weight gain
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referral

Justification

Weight loss during pregnancy may indicate underlying dietary or health practices, or health or social conditions associated with poor pregnancy outcomes. These outcomes could be improved by the supplemental food, nutrition education, and referrals provided by the WIC Program.

Justification for high risk

Low gestational weight gain is associated with an increased risk of giving birth to a growth-retarded infant. This has important adverse consequences for subsequent somatic growth, neurobehavioral development. It increases the risk of infant mortality. Some maternal characteristics associated with an increased risk of low gestational weight gain (< 6 lbs) occur in combination, e.g., low family income, black race, young age, unmarried status and low educational level, and are associated with short gestational duration and increased risk of premature delivery. WIC supplemental foods, nutrition education counseling, and environment for frequent monitoring of weight gain status may improve infant outcomes.

Continued on next page

132 Maternal Weight Loss During Pregnancy, Continued

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 81-82.

2. Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

3. Brown, Judith E., RD, MPH, PhD: Final Report on Prenatal Weight Gain Considerations for WIC; September 1998; commissioned by the Risk Identification and Selection Collaborative.

4. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User's Manual. Atlanta, GA: CDC; 1994; page 8-3.

133 High Maternal Weight Gain

Definition/ cut-off value

Singleton Pregnancies:

Pregnant Women, all trimesters, all weight groups:
> 7 lbs/mo

Breastfeeding or Postpartum Women (most recent pregnancy only): total gestational weight gain exceeding the upper limit of the IOM's recommended range based on prepregnancy Body Mass Index (BMI), as follows:

Prepregnancy Weight Groups	Definition	Total Weight Gain	Twin Pregnancy Weight Gain
Underweight	BMI < 19.8	> 40 lbs	> 50 lbs
Normal Weight	BMI 19.8 to 26.0	> 35 lbs	> 45 lbs
Overweight	BMI 26.1 to 29.0	> 25 lbs	> 35 lbs
Obese	BMI > 29.0	> 15 lbs	> 25 lbs

Note: Although the 1998 National Heart, Lung and Blood Institute (NBLBI) Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults, define adult obesity as $\geq$ 30 BMI, the IOM (1990) prepregnancy weight classifications define obese prenatal women as > 29.0 BMI.

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	Y
Breastfeeding	I	N
Postpartum	IV	N

Continued on next page

133 High Maternal Weight Gain, Continued

Documentation

Enter participant's self-declared prepregnancy weight in screen 103.
Enter height and weight in screen 104.
If pregnant:
- record prepregnancy BMI from screen 104 onto prenatal weight gain gird or plot on back of grid
- plot prepregnancy weight and current weight on weight gain grid

If breastfeeding or postpartum:
- enter weight at labor in screen 103
- enter total weight gain from screen 103 onto weight gain grid
- postpartum BMI will be displayed in screen 104

Enter NRF #133 in screen 106 if pregnant.
NRF #133 auto assigned if breastfeeding or postpartum.
Document referrals in screen 106.
If pregnant, document High Risk Care Plan in participant's chart.
Suggested components to assess:
- accuracy of EDD, prepregnancy weight and BMI
- pattern of weight gain relative to the recommended weight gain
- dietary intake and calorie rich foods
- food choices of high nutritional quality and folic acid
- participant's readiness for change
- energy expenditure/appropriate physical activity
- body perception

RD must document management of care plan
If pregnant, schedule appropriate nutrition education or individual contact at next visit.
If breastfeeding or postpartum, schedule appropriate nutrition education at next visit.

Continued on next page

133 High Maternal Weight Gain, Continued

Parameters for auto assign

Total weight gain is calculated by subtracting prepregnancy weight from weight at delivery.
Will be auto assigned if total weight gain exceeds the amount in the table above based on their prepregnancy BMI.
Will only be auto assigned for breastfeeding and postpartum women.
For multiple births, CPA should refer to table to determine if risk factor is appropriate.
Must be manually assigned if pregnant woman gains > 7 lbs per month.

Counseling guidelines

Explain participant's BMI in relation to normal BMI.
Explain and show recommended weight gain range (use upper end of weight gain range).
Discuss risks of excessive weight gain:

- women with large weight gains are at risk for delivering high birth weight babies which can lead to complications (see justification section)
- infant > 9 lbs are at higher risk; > 9.5 lbs increase mortality risk
- high weight gains are associated with pregnancy induced hypertension, preeclampsia, toxemia

Discuss benefits of appropriate weight gain:

- healthier birth weight baby
- decreased risk of subsequent obesity, which can lead to other health concerns
- less body fat to lose after delivery
- feel better:
  - physically (easier to be more active)
  - cardiovascular (less strain for your heart)
  - psychologically (you met your goal)
- be more active for your new baby!

Continued on next page

133 High Maternal Weight Gain, Continued

Counseling guidelines, (continued)

Discuss ways to improve nutritional intake:
- decrease high calorie/low nutrient-dense foods
- food selection/choices/substitutions
- portion sizes
- frequency of eating
- low-fat recipes and cooking
- cultural cooking choices
- WIC food choices

Discuss physical activity:
- recommend moderate exercise with MD approval
- exercise influences body weight and composition
- encourage to undertake or continue appropriate levels of activity
- keep it fun (a family event at the park)

Address behavioral factors:
- eating environment (eating in front of the TV)
- psychological factors (eating when feeling stressed or emotionally upset)
- cultural factors (body perceptions)
- substitution behaviors (leave the kitchen area and go outside)
- "triggers" that stimulate eating (know them and have a plan)
- participant's readiness to change

Suggested handouts

To the Pregnant Woman Who Is Gaining Too Much Weight
What to Eat When You Are Pregnant
I'm Breastfeeding - What Should I Eat?
Daily Food Guide - Pregnant/Breastfeeding/Postpartum

Follow up and assessment guidelines

If pregnant, weight gain plotted and assessed at each clinic visit.
If pregnant, individual assessment with a Registered Dietitian.
- reassess weight gain
- reinforce benefits of appropriate weight gain
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

If breastfeeding or postpartum, appropriate nutrition education at each visit.

Continued on next page

133 High Maternal Weight Gain, Continued

Justification

Women with large gestational weight gains are at increased risk for delivering high birth weight infants, which can secondarily lead to complications such as: dysfunctional and prolonged labor, midforceps delivery, cesarean delivery, shoulder dystocia, meconium aspiration, clavicular fracture, brachia plexus injury, and asphyxia. Neonatal mortality begins to rise when birth weight is > 4250g. (> 9 1/2 lbs). Infants are at higher risk when birth weight is > 4000g. (>9 lbs).

High gestational weight gains have been associated with pregnancy induced hypertension, preeclampsia, and toxemia, although these associations need further study. One goal in the nutritional counseling provided to pregnant women by WIC, is to achieve recommended weight gain by emphasizing food choices of high nutritional quality, particularly those foods high in folic acid which are important in the prevention of neural tube defects.

Breastfeeding and postpartum women with extremely high weight gains during pregnancy may be at increased risk of subsequent obesity leading to other chronic health conditions. The WIC CPA is in an excellent position to remind participating women that decreasing unnecessary calorie-rich foods and participating in moderate, appropriate physical activity and exercise, play a significant role in minimizing these risks.

An upper limit on weight gain for multifetal pregnancies (twins, triplets, etc.) has not been established definitively. For multiple births, both the optimal range of birth weight gain and the gestational age associated with the lowest morbidity is achieved earlier than for singleton births. For twins, this optimal range is estimated to be 2,500 to 2,800 g at 36-37 weeks, and for triplets, 1,900 to 2,200 g at 34-36 weeks. Outcomes with both twins (or the average of the twin pair) weighing 2,500 g or more have been reported for maternal weight gains of 40-45 lbs.

Continued on next page

133 High Maternal Weight Gain, Continued

Justification (continued)

It has been suggested that clinical guidelines for maternal weight gain during twin gestation should be based on prepregnancy BMI, although data to support the development of such guidelines while growing, remains scant. Weight gain should be encouraged throughout a twin gestation in underweight women, with a target gain of 1.75 lbs/week after 20 weeks' gestation. The data support a weight gain of 1.5 lbs/week for normal weight women during the second half of twin pregnancy.

Aside from the weight gain issue, for WIC eligibility determinations, multifetal pregnancies are considered a nutrition risk for WIC in and of themselves (Risk #335). Education by the WIC nutritionist or paraprofessional should address a steady rate of gain that is higher than that of the singleton pregnancy.

Justification for high risk

Very high gestational weight gain is associated with an increased rate of birth weight which is associated with an increased risk of fetopelvic disproportion, operative delivery, birth trauma, asphyxia and mortality. WIC's role to counsel pregnant women to achieve recommended weight gain, emphasize high nutritional quality foods, and monitor weight gain through frequent weight checks and visits, can lead to better birth outcomes.

Continued on next page

133 High Maternal Weight Gain, Continued

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; p. 86.

2. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990; pp. 10, 12, 187, 201.

3. Suitor, CW. 1997. Maternal Weight Gain: A Report of an Expert Work Group. Arlington, VA: National Center for Education in Maternal and Child Health.

4. Metropolitan Life Insurance Co.: New weight standards for men and women; 1959; 40:1-4.

5. Carmichael, Suzan; Abrams, Barbara; and Selvin, Steve: The Pattern of Maternal Weight Gain in Women with Good Pregnancy Outcomes; American Journal of Public Health; December 1997; Vol. 87, No. 12, pp. 1984-1988.

6. Waller, Kim: Why neural tube defects are increased in obese women; Contemporary OB/GYN; October 1997; pp. 25-32.

7. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute, National Institutes of Health. NIH Publication No. 98-4083 http://www.nhlbi.nih.gov/guidelines/obesity/ob_home/htm

134 Failure to Thrive

Definition/ cut-off value

Presence of failure to thrive (FTT) as reported or documented by a physician, or someone working under physician's orders.

Participant category and priority level

Category	Priority	High Risk
Infants	I	Y
Children	III	Y

Documentation

Document physician's diagnosis in participant's chart or circle condition on Medical History form if self reported.
Enter NRF #134 in screen 106.
Document High Risk Care Plan in participant's chart.
Suggested components to assess:

- assess growth (weight, height, OFC for age, weight for height)
- identify if impaired growth reported is due to organic or inorganic origin
- family history of growth regarding parents and siblings
- social history (stressors within the family)
- dietary history; evaluate adequate caloric intake
- eating environment, home environment
- participant's knowledge of breastfeeding; ability to identify complications or need for support
- current access to medical care
- referrals for other health and social services

RD must document management of care plan
Document referrals in screen 106.
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Not auto assigned.
Must be manually selected.

Continued on next page

134 Failure to Thrive, Continued

Counseling guidelines

Discuss participant's impression or understanding of FTT diagnosis.
Discuss factors that may be involved in growth failure.
Inadequate caloric intake:
- financial
- educational
- mother-infant interaction

Inadequate calories accepted:
- swallowing problems - organic (CNS, cleft palate, etc.)
- too sick or too tired to eat (e.g. cardiac)
- anorexia

Inadequate calories retained:
- spitting, vomiting
- gastro esophageal reflux
- diarrhea

Inadequate calories absorbed:
- malabsorption (under MD's care)

Inadequate calories utilized:
- heart disease, cancer

Illness or disease (gastrointestinal, endocrine, or other chronic disease):
- genetic factors
- formula intolerances, food preferences
- secondary issues (e.g. medications)
- unclear origin

Explain growth pattern (show charts):
- adjust for gestational age
- use disease-specific growth charts (e.g. Down's Syndrome for counseling)

Explain expected and realistic growth pattern - maintaining or gradually increasing channels.
Explain that frequent weight, height, OFC checks, are important in following growth.

Continued on next page

134 Failure to Thrive, Continued

Counseling guidelines, (continued)

Provide basic dietary recommendations for optimal growth.

- recommend appropriate calorie level

< 3 mo	120 kcal/kg
3-5 mos	115 kcal/kg
6-8 mos	110 kcal/kg
9-11 mos	105 kcal/kg

- possibly based on IBW for catch-up growth
- recommend rate of weight gain per week/month

Explain special mixing instructions for formula/medical nutritional products provided by health care provider/metabolic RD (see Product Guide).

- provide written instructions for mixing

Identify if nutritional products are being tolerated or accepted; refer to MD if not.
Meal plan to balance use of nutritional product with solid foods.
If no weight gain, try substituting nutritional products for other liquids.
Use lactose free products after GI episodes.
Educate on increasing calorie concentration:

- "calorie booster" or "power packing" ideas

Discuss meal scheduling:

- add more snack and times to eat, or
- offer foods only at mealtimes, eliminate grazing to stimulate appetite

Discuss modification of foods

- change textures, temperature, presentations
- infants - use gestational age for food introduction
  - feedings at night, wake to feed, etc.

Suggest physical activity

- if medically able, expose the child in an environment promoting physical activity part of the day/week

Continued on next page

134 Failure to Thrive, Continued

Counseling guidelines, (continued)

Delicately discuss, parent/child interaction:
- does the mother respond to the child's nutritional and emotional needs (educate on cues)
- remember, in many FTT cases, parents are very tentative and not neglectful

Discuss breastfeeding:
- availability of adequate volume of breastmilk
- fatigue at feeds, good latch/suck
- pumping, SNS use, bottle supplementation
- number of feeds, length of time between feeds, wake to feed
- baby weight scales to measure volume intake

Suggested handouts

Infant Feeding Guide
The First 12 Months
Is My Child Gaining Enough Weight?
How Much Is Enough For My Child?

Follow up and assessment guidelines

Refer breastfeeding infants and children to Lactation Educator.
Individual assessment with a Registered Dietitian
- reassess growth: weight, height, weight for height, OFC (infants)
  - may use disease-specific chart and adjust for gestational age
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

Justification

Failure to thrive (FTT) is a serious growth problem with an often complex etiology.

FTT may be a mild form of Protein Energy Malnutrition (PEM) that is manifested by a reduction in rate of somatic growth. Regardless of the etiology of FTT, there is inadequate nutrition to support weight gain.

Continued on next page

134 Failure to Thrive, Continued

Justification for high risk

Failure to thrive is a serious growth problem and, on occasion, can lead to severe forms of protein energy malnutrition (PEM) or micronutrient deficiency diseases. Failure to thrive can lead to developmental delays despite weight gain. WIC participation can help restore nutrition status, improve weight gain, and promote rehabilitation and growth/catch-up growth by providing key nutrients and nutrition counseling. The WIC setting can also provide immediate referral for nutrition and health intervention.

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 159-166.

2. Berkow, et al.: Merck Manual Section 15.191; 1992; 16th edition.

135 Inadequate Growth

Definition/ cut-off value

An inadequate rate of weight gain as defined below.

NOTE: If an infant or child is following their growth channel there is no reason to do the following calculation. An infant or child following their growth channel has adequate growth (with respect to the nutrition risk factors).

Infants from birth to 1 month of age:

- excessive weight loss after birth (> 8% lost from birth)
- not back to birth weight by 2 weeks of age

Definition/ cut-off value

Infants > 1 month and Children:

1. The following tables are used to determine the "minimal expected weight gain" for an infant or child. If an infant or child has a weight gain for a period of time that is less than the number derived from the chart, then they should be assigned NRF #135. All numbers in the tables are given in ounces except table 8.

Age	Use Table
1-7 months	1
7-9 months	2
9-11 months	3
11-13 months	4
13-15 months	5
15-17 months	6
17-19 months	7
> 19 months	8

Continued on next page

135 Inadequate Growth, Continued

Definition/ cut-off value (continued)

If the infant or child is not following their growth channel:

Step	Action
1	Determine the infant/child's actual weight gain since their last visit. To do this, convert today's weight to ounces using the conversion table. Convert the previous weight to ounces using the conversion table. Subtract the previous weight from today's weight.
2	Find the table that has this infant/child's age at their previous weight on the top line and their current age on the left hand side. Ages should be in months and weeks. The tables uses an abbreviation for months and weeks that shows month followed by a decimal and then the number for weeks. For example, 2.3 would indicate an age of 2 months and 3 weeks.
3	Go down from the age at the previous weight and across from age at the current weight and the number you find is the "minimal expected weight gain." If the number in the box is greater than the actual weight gain, then NRF #135 Inadequate Growth should be assigned to the infant/child. If the number is less, Inadequate Growth does not apply. If the box is blank where the lines intersect, NRF 135 cannot be assigned.

Note: The time between weight measurements must be at least one month for infants < 6 months of age and at least 3 months for infants/children > 6 months of age. Previous weights may not be used if they are > 7 months old. The weight gain tables are designed so that the boxes are blank for time intervals that do not meet these requirements, If the box is blank where the lines intersect, NRF 135 cannot be assigned.

If the time interval from the current weight to the previous weight is too short to meet the minimal interval, you may skip over the previous weight and go to the next pervious weight that meets the time interval. You must, however, always use the **current weight** and the **most recent previous weight that meets the minimal time interval.** You may not skip weights that meet the interval in order to find a weight that will risk the infant/child.

Continued on next page

135 Inadequate Growth, Continued

Example 1

An infant is originally weighed for certification on the WIC Program at 2 weeks (0.2) of age. The infant is now in the clinic at 3 months and 1 week of age (3.1).

Weight at 3.1 = 12 pounds 8 ounces	= 200 ounces
Weight at 0.2 = 8 pounds 2 ounces	= 130 ounces
Weight gain	70 ounces actual weight gain

Table # 1: Go across the top of the chart until you find 0.2. Go down this column until you intersect with the row for 3.1. The minimal expected weight gain is 59 ounces. Because the actual weight gain is greater, this risk factor does not apply.

Example 2

A child is being recertified on the WIC Program at 15 months and 3 weeks. The last previous weight was at a previous recertification at 11 months and 2 weeks.

Weight at 15.3 = 23 pounds 1 ounce	= 369 ounces
Weight at 11.2 = 22 pounds 9 ounces	= 361 ounces
Weight gain	8 ounces actual weight gain

Table #6: Go across the top of the chart until you find 11.2. Go down this column until you intersect with the row for 15.3. The minimal expected weight gain is 14 ounces. Since the actual weight is less that the expected weight gain, this child should be assigned NRF #135.

Continued on next page

135 Inadequate Growth, Continued

Example 3

An infant is being seen mid-cert at 6 months and 2 weeks of age. Their most current previous weight was at 4 months and 1 week of age.

Weight at 6.2 = 18 pounds 7 ounces	= 295 ounces
Weight at 4.1 = 15 pounds 2 ounces	= 242 ounces
Weight gain	53 ounces

Table #1: Go across the top of the chart until you find 4.1. Go down this column until it intersects with the row for 6.2. There is no minimal expected weight gain listed because this is not an allowed time interval (after 6 months of age the intervals must be at least 3 months between weights). This infant did have another weight at 2 months and 1 week of age. Using this weight we get:

Weight at 6.2 = 18 pounds 7 ounces	= 295 ounces
Weight at 2.1 = 14 pounds 9 ounces	= 233 ounces
Weight gain	62 ounces

Table 1 does list an expected weight gain for this interval -- 63 ounces. Since the actual weight gain is less than the expected weight for this infant, NRF #135 should be assigned.

This infant could not be assigned for NRF based on the weights at 4.1 and 2.1 even though they are separated by an allowed interval (the interval is only one month when the infant is under 6 months of age). You must always use the infant/child's current weight and then the most recent previous minimal time interval.

Continued on next page

135 Inadequate Growth, Continued

Example 4

A child is being recertified on the WIC Program at 3 years 9 months and 1 week of age. The child was last weighed at 3 years 2 months and 3 weeks of age. The time difference between these two weights is 6 months and 3 weeks (this time interval is more than 3 months and less than 7 so it may be used).

Table #8 shows that the expected weight gain for this period is one pound. The child's current weight is 33 1/4 pounds. Their previous weight was 32 3/4 pounds. The difference is 1/2 pound. This is less than the expected weight gain of one pound so this child should be assigned NRF #135.

Continued on next page

135 Inadequate Growth, Continued

Participant category and priority level

Category	Priority	High Risk
Infants	I	Y
Children	III	Y

Documentation

Enter weight, length/height and OFC in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot measurement on approved growth chart:
- < 2 years of age: weight for length on Birth to 36 Month Growth Chart
- = 2 years of age: weight for height on 2-20 Year Growth Chart

Enter NRF #135 in screen 106.
Document referrals in screen 106.
Document High Risk Care Plan in participant's chart.
Suggested components to assess:
- growth (weight, height, OFC for age, weight for height)
- identify if impaired growth is due to organic or inorganic origin
- dietary intake; evaluate adequate caloric intake and history
- family history of growth regarding parents and siblings
- social history (stresses within the family)
- parent's knowledge of breastfeeding; ability to identify complications or need for support
- parent's knowledge of formula feeding; amount to feed, mixing and preparation
- eating environment, home environment
- current access to medical care
- referral to health care provider, Registered Dietitian, other services needed

RD must document management of care plan
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Not auto assigned.
Must be manually selected.

Continued on next page

135 Inadequate Growth, Continued

Counseling guidelines

Explain that undereating, for any number reasons, and disease conditions are the main causes of abnormally slow growth.

Explain factors associated with undereating may include:

- lack of social support for the caregiver
- adverse social and psychological environment
- caregiver's lack of education, health and nutrition knowledge, mental and physical abilities, and responsibility for child care
- a disorganized family
- depressed parents or caregivers

Inform height, weight and OFC are indicators of growth and nutritional adequacy.

Explain anthropometric data:

- in relationship to growth chart percentiles
- in terms of future growth on reference curve

Discuss factors affecting growth

Medical condition:

- refer to health care provider
- tools to assist (e.g. Haberman feeder with cleft palate)
- G-tube, follow health care provider's instructions on caloric needs

Dietary intake:

- Infant
  - Appropriate breastfeeding:
    - good suckling, latching
    - frequency of breastfeeding, length of feeds
    - wet diaper output, etc.
    - SNS or supplemental feeds
  - Appropriate formula:
    - mixing and preparation
    - intake (ounces) at feedings
    - RD can use average of 112 kcal/kg intake

Continued on next page

135 Inadequate Growth, Continued

Counseling guidelines, (continued)

- Child
  - Five Food Groups/Food Guide Pyramid
  - non-nutritive foods/inappropriate choices
  - calorie boosting
  - WIC food package
- Eating environment
  - booster chair or high chair at table
  - poor/no equipment (e.g. eating on floor)
  - eating with others vs. in front of TV

Home environment/social history:

- nurturing/supportive
- high traffic/distractions/noisy
- change in households/moving frequently

Family history of growth:

- height, weight, build of parents/siblings

Illness or sickness:

- possible decreased appetite or intake
- increased caloric expenditure, e.g. fevers

Suggested handouts

Infant Feeding Guide
Is My Child Gaining Enough Weight?
How Much Is Enough for My Child?
Daily Food Guide - Children

Follow up and assessment guidelines

Refer breastfed infants and children to Lactation Educator.
Individual assessment with a Registered Dietitian.

- reassess growth: weight, height, weight for height, OFC (infants)
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

Continued on next page

135 Inadequate Growth, Continued

Justification

Weight for age is a sensitive indicator of acute nutritional inadequacy. The rate of gain during infancy, especially early infancy is rapid, and abnormalities in rate of weight may often be detected in just a few months. There is little question that decrease in the rate of weight gain during infancy is the earliest indication of nutritional failure. In contrast, children beyond infancy grow rather slowly, and many months of observation may be required to demonstrate that the rate of weight gain is unusually slow. During the first eighteen months of life, to change in weight fluctuates and then declines rapidly. Because of this deceleration it may be difficult to differentiate normal growth slowing from an abnormal rate. After 18 months weight gain becomes more linear so assessment becomes easier.

Infants and children with abnormally slow growth can benefit from nutrition and health interventions to improve weight and height gain. The diagnosis of slow growth must consider possible causes of growth changes including undereating and disease conditions. Undereating, for any number of reasons, and disease conditions are the main causes of abnormally slow growth. Factors associated with undereating by an infant or child include inadequate sources of nutrient dense foods; lack of social support for the caregiver; an adverse social and psychological environment; a disorganized family; depressed parents or caregivers; and the caregiver's lack of education, health and nutrition knowledge, mental and physical abilities, and responsibility for child care. There is good evidence that through nutrition education, supplemental foods, and referrals to other health and social services, participation in the WIC Program will benefit infants and children with slow growth. In keeping with the preventive nature, a cut-off point approximating the 10th percentile rate of change in weight for age was chosen.

Justification for high risk

Inappropriately low weight for stature provides a clear indication of recent malnutrition. The WIC environment provides for an excellent opportunity to identify a decline in growth through anthropometric monitoring and prevent deterioration through ongoing nutrition education and supplemental foods. Such intervention promotes catch-up growth in weight and other dimensions of growth. The participant can also benefit from additional nutritional and medical referrals.

Continued on next page

135 Inadequate Growth, Continued

References

1. Baumgartner RN, Roche AF, Himes, JH: Incremental Growth Tables: Supplementary to Previously Published Charts; American Journal of Clinical Nutrition; 1986; 43: 711-722.

2. Guo, S, Rouche, AF, Fomon, SF, Nelson, SE, Chumlea, WC, Rogers, RR, Baumgartner, RN, Zeigler, EE and Siervogel, RM: Reference data on gains in weight and length during the first two years of life; J Pediatr; 1991; 119:355-362

3. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 123-124.

4. Fomon , Samuel, J.: Nutrition of Normal Infants; Mosby; 1993; pp. 47-51.

141 Low Birth Weight

Definition/ cut-off value

Birth weight = 5 pounds 8 ounces (= 2500 g).

Participant category and priority level

Category	Priority	High Risk
Infants	I	Y

Documentation

Enter birth weight in screen 105.
NRF #141 will be auto assigned by UWIN.
Document High Risk Care Plan in participant's chart.
Suggested components to assess:
- growth (weight, height, OFC for age, weight for height)
- dietary intake

RD must document management of care plan
Document referrals in screen 106.
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Will be auto assigned if birth weight is = 5 lbs 8 ozs.

Continued on next page

141 Low Birth Weight, Continued

Counseling guidelines

Explain:
- low birth weight (define)
- expected growth for low birth weight infant
- importance of optimal nutrient intake to meet growth needs since they are at higher risk
  - immunologically, especially if also premature
  - ELBW (1000 g) are very high risk for long-term neurobehavioral dysfunction
  - LBW are associated with poor health, growth and development, but are less as the child gets older
  - LBW infants with SGA and prematurity are at an increased risk

Encourage breastfeeding:
- optimal nutrition, increased immunological benefits, less infections, less diarrhea, etc.

May need breastfeeding assistance and support.

Registered Dietitian follow prescription for premature formula or human milk fortifier.
- provide written mixing instructions for HMF or for increased calories

Explain anthropometric data (growth).

Discuss weight gain; adequate for age:
- adjust for gestational age for counseling
- use perinatal growth chart for counseling

Discuss dietary intake regarding breastfeeding or formula. Ask about:
- number of feeds, length of feeds, time between feeds, amounts of feeds, fatigue at feeds, suck adequate and strong, need to wake at feeds, etc.

Discuss nutrition recommendations:
- recommend developmentally appropriate foods, age appropriate foods, nutrient dense foods, etc.

WIC foods:
- exclusively breastfed packages for women targeted for food and nutrients to support lactation

Refer infants < 1,500 gms to Neonatal Follow Up Program offered by Utah Department of Health.

Continued on next page

141 Low Birth Weight, Continued

Suggested handouts

Infant Feeding Guide
Nursing Your Sleepy Baby

Follow up and assessment guidelines

Refer breastfed infants to Lactation Educator.
Individual assessment with a Registered Dietitian.

- reassess growth: weight, height, weight for height, OFC (infants)
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

Justification

Low birth weight (LBW) is one of the most important biologic predictors of infant death and deficiencies in physical and mental development during childhood among those babies who survive and continues to be a strong predictor of growth in early childhood. Infants and children born with LBW, particularly LBW caused by fetal growth restriction, need an optimal nutrient intake to survive, meet the needs of an extended period of relatively rapid postnatal growth, and complete their growth and development.

Justification for high risk

Low birth weight is associated with poor health, growth and development. It is the most important biologic predictor of infant death and deficiencies in physical and mental development. The consequences of low birth weight caused by IUGR and those caused by prematurity differ, however when combined with low birth weight they pose an increased risk. Extreme low birth weight are at a very high risk for long term neurobehavioral dysfunction and poor school performance. Infants must receive an optimal nutrient intake to survive, meet the needs for an extended period of rapid postnatal growth, and complete their growth and development. There is a potential to benefit from the WIC program through intervention that supports breastfeeding, provides nutrient dense foods, provides nutrition education and health referrals.

Continued on next page

141 Low Birth Weight, Continued

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 97-100.

2. Groh-Wargo, S., Thompson, M., Cox, J. Editors: Nutrition Care for High Risk Newborns: "Routine Nutrition Care During Follow-up"; Jeanine Stice; 1994; pp. 380-390.

142 Prematurity

Definition/ cut-off value

Infant born = 37 weeks gestation.

Participant category and priority level

Category	Priority	High Risk
Infants	I	N

Documentation

Enter mom's ID # and answer "yes" to "Mom on WIC" in screen 105 in infant record.
Enter most current EDD in screen 103.
NRF #142 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if:

- "Mom on WIC" is marked in screen 105 in infant record
  AND
- infant was born at least 2 weeks early based on EDD

Continued on next page

142 Prematurity, Continued

Counseling guidelines

If participant is receiving nutrition counseling outside of WIC:

- Encourage compliance with:
  - recommended feeding method (breast, bottle, gavage, parenteral, enternal)
  - supplementation of breastmilk or formula (HMF, high caloric density formula, vitamin/mineral supplementation)
  - pumping and/or mixing instructions
  - continued follow-up with medical provider, occupational therapist, and dietitian

If participant is not receiving nutrition counseling outside of WIC:

- refer to Neonatal Follow-Up Program (if < 1,500 gms), hospital dietitian where baby was discharged, neonatologist, or MD for nutrition counseling and medical follow-up
- Adjust for prematurity on growth grid (for counseling only) - explain expected pattern of growth (following a normal curve). Remember accurate measurements are critical for premature babies
  - corrected age = chronological age in weeks minus the number weeks premature at birth
- calculate rate of weight gain if two weights are available:
  - appropriate growth is 20-25 gms (.75 to 1 oz) per day
- assess current caloric and dietary intake
  - goal calorie range is 110-150 kcal/kg/day
  - average intake is usually around 120 kcal/kg/day

Recommend increased or decreased calories depending on the amount of weight gained or lost. Contact MD for prescription if higher calorie formula or change in formula is warranted.

Tailor food package to provide Human Milk Fortifier, premature formula, or other special nutritional products if needed

Remember premature formulas must be monthly vouchered.

Continued on next page

142 Prematurity, Continued

Counseling guidelines, (continued)

- if mom is breastfeeding:
  - refer to a Lactation Educator and peer counselor
  - offer lots of support and encouragement
  - provide an electric pump if needed
- encourage the participant to discuss supplement needs with their MD
- work with the MD to determine when it is healthy to change an infant on premature formula to a term baby formula (usually around 2,500-3,000 gm if growth is stable)
- refer to occupational therapist if needed (oral aversion is very common due to prolonged use of TPN and/or tube feedings)
- assist parents in determining if their infant is ready for solid foods
- refer to the WIC Cardex "Nutrition for the Premature Infant" for detailed assessment and counseling information

Suggested handouts

Feeding Your Premature Baby at Home

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Justification

Premature infants may have physical problems that have nutritional implications, including immature sucking, swallowing and immature digestion and absorption of carbohydrates and lipids. Premature infants have increased nutrient and caloric needs for rapid growth. Premature infants grow well on breastmilk. WIC promotes breastfeeding and provides nutrition education about infant feeding.

Justification for high risk

Not applicable

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 215-216.

151 Small for Gestational Age

Definition/ cut-off value

- < 10th percentile weight for gestational age at birth, based on the chart below, or
- Presence of small for gestational age diagnosed by a physician as self reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

Gestational Age (weeks) Infant was born at...	Birth weight (grams) Less than...	Birth weight (lbs-oz) Less than...
40	2600	5-12
39	2450	5-6
38	2300	5-1
37	2100	4-10
36	1900	4-3
35	1700	3-12
34	1500	3-5
33	1350	2-15
32	1200	2-10
31	1100	2-7
30	1000	2-3
29	850	1-14

Source: Intermountain Newborn Intensive Care Center Perinatal Growth Chart

Participant category and priority level

Category	Priority	High Risk
Infants	I	Y

Continued on next page

151 Small for Gestational Age, Continued

Documentation

Enter mom's ID# and answer "yes" to "Mom on WIC" in screen 105 in infant record.
Enter LMP or most current EDD in screen 103.
Enter Date of Actual Delivery in screen 103.
Enter Birth Weight in screen 105.
NRF #153 auto assigned by UWIN.
Document High Risk Care Plan in participant's chart.

Suggested components to assess:

- potential causes:
  - mother's stature, prepregnancy weight, weight gain during pregnancy, overall health (presence of infection, hypertension, smoking or alcohol use)
  - low socioeconomic status
  - short interconceptual period
  - living at high altitude
- history of LBW and/or prematurity
- racial/ethnic background (black and Asian infants tend to be smaller, but should not fall below the 10th percentile)
- presence of congenital malformations that may affect nutrition
- type of feeding (breast or formula)
- growth pattern (height, weight, and OFC)
- referrals needed

RD must document management of care plan
Document referrals in screen 106.
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Will be auto assigned if:

- "Mom on WIC" is marked in screen 105 in infant record

AND

- gestational age at birth < 10th percentile based on the above chart.

Must be manually selected if diagnosed by a physician.

Continued on next page

151 Small for Gestational Age, Continued

Counseling guidelines

Refer to the Neonatal Follow-Up Program (if < 1,500 gms), neonatologist, pediatrician, and/or pediatric dietitian for comprehensive counseling and follow-up if needed.

Explain potential risks of SGA:

- higher mortality and morbidity rates
- slower physical growth
- possibly slower mental development
- congenital abnormalities
- long term deficit growth and neurocognitive development

Review appropriate infant feeding:

- encourage breastfeeding
- if also premature, Human Milk Fortifier, or supplement of premature formula may be needed
- if breastfeeding is not possible or feasible, work with medical provider to provide formula tailored to meet their needs
- explain appropriate calorie level and nutrient intake to encourage growth
- delay solids until the infant is developmentally ready

Explain expected growth pattern:

- infants should follow an individually appropriate growth curve
- preterm, black, and Asian children may be smaller, but should not fall < 10th percentile

Suggested handouts

Infant Feeding Guide
The First 12 Months

Follow up and assessment guidelines

Individual assessment with Registered Dietitian.

- reassess growth: weight, height, weight for height, OFC
- reassess dietary/caloric intake
- assess compliance with recommendations
- document if participant followed through on referrals

Continued on next page

151 Small for Gestational Age, Continued

Justification

Impairment of fetal growth can have adverse effects on the nutrition and health of children during infancy and childhood, including higher mortality and morbidity, slower physical growth, and possibly slower mental development. Infants who are small for gestational age (SGA) are also more likely to have congenital abnormalities. Severely growth-retarded infants are at markedly increased risk for fetal and neonatal death, hypoglycemia, hypocalcemia, polycythemia, and neurocognitive complications of pre- and intrapartum hypoxia. Over the long term, growth-retarded infants may have permanent mild deficits in growth and neurocognitive development.

Justification for high risk

Infants who are SGA are likely to have permanent mild deficits in growth and neurocognitive development. They will benefit from individual nutrition counseling and growth assessment.

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 100-104.
2. Groh-Wargo, S., Thompson, M., Cox, J. Editors: Nutrition Care for High Risk Newborns: "Routine Nutrition Care During Follow-up", Jeanine Stice; 1994; pp. 380-390.
3. Behrman, R., et al.: Nelson Textbook of Pediatrics; 13th ed.; 1987; p.384.
4. Babson, SG, Benda, GI: Journal of Pediatrics; 1976; 89:815.
5. Lubchenco, LO, Hansman, C., and Boyd, E.: Pediatrics; 37:403.
6. Battaglia FC, Lubchenco LO: A practical classification of newborn infants by weights and gestational age. J Pediatr 1967; 71:159-163.
7. Intermountain Newborn Intensive Care Center Perinatal Growth Chart.

152 Head Circumference < 5th Percentile

Definition/ cut-off value

< 5th percentile head circumference based on National Center for Health Statistics (NCHS) growth charts.

Participant category and priority level

Category	Priority	High Risk
Infants	I	Y

Documentation

Enter OFC in screen 105.
Enter anthro date if different from cert date in screen 105.
Plot OFC on Birth to 36 Month Growth Chart.
Enter NRF #152 in screen 106.
Document High Risk Care Plan in participant's chart.
Suggested components to assess:

- mother's pregnancy weight and weight gain during pregnancy
- history of fetal growth restriction, prematurity, or low birth weight
- adequacy of dietary intake
- growth pattern

RD must document management of care plan
Document referrals in screen 106.
Schedule appropriate nutrition education or individual counseling at next visit.

Parameters for auto assign

Will be auto assigned if head circumference is < 5th percentile.

Continued on next page

152 Head Circumference < 5th Percentile, Continued

Counseling guidelines

Refer to pediatrician for comprehensive follow-up if needed.

Explore potential causes of low head circumference:

- malnutrition during critical stages of brain development (from early fetal life through approximately 3 months past delivery). Mother's prepregnancy weight, fat stores, and weight gain during pregnancy are correlated with head size.
- genetic disorders such as autosomal and sex chromosome abnormalities
- health factors related to low head circumference include: PKU, exposure to neurotoxic substances, cocaine and alcohol use during pregnancy, intracranial hemorrhages, perinatal asphyxia, ischemic brain injury, and other major congenital CNS abnormalities

Explain risk associated with low OFC:

- poor neurocognitive abilities
- lower IQ
- growth or developmental retardation
- increased morbidity

Review appropriate infant feeding:

- poor nutrition affects weight, then height, then head circumference, thus a small head circumference may indicate advanced malnutrition
- encourage breastfeeding
- explain appropriate calorie level and nutrient intake to encourage growth
- delay solids until the infant is developmentally ready

Explain expected growth pattern:

- infants should follow an individually appropriate growth curve
- preterm, black, and Asian children may be smaller, but should not fall < 10th percentile

Suggested handouts

Infant Feeding Guide
The First 12 Months

Continued on next page

152 Head Circumference < 5th Percentile, Continued

Follow up and assessment guidelines

Individual assessment with a Registered Dietitian.

- reassess growth: OFC
- reassess dietary/caloric intake if considered a major factor
- assess compliance with recommendations
- encourage compliance with medical treatment
- document if participant followed through on referrals

Justification

Low head circumference (LHC) is related to a variety of genetic, nutrition, and health factors. Head size is also related to socioeconomic status, and the relationship is mediated in part by nutrition factors. Abnormal LHC is indicative of future nutrition and health risk, particularly poor neurocognitive abilities. LHC is associated with LBW and is a strong predictor of growth retardation and other dimensions of growth and development.

Justification for high risk

Poor nutrition affects weight, then height, then head circumference thus a small head circumference may indicate advanced malnutrition. An infant with low head circumference may also experience poor neurocognitive abilities and growth or developmental retardation which affect nutrition. An infant with a small head circumference may benefit from individual counseling follow-up by a Registered Dietitian.

References

1. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 73-79.

2. Hamill, PVV, Drizard, TA, et al.: Physical Growth: National Center for Health Statistics Percentiles; American Journal Clin. Nutr.; 1979; 32:607-629.

153 Large for Gestational Age

Definition/ cut-off value

Birth weight > 9 pounds (> 4000 g) or > 90th percentile weight for gestational age at birth, based on the chart below, or

Presence of large for gestational age diagnosed by a physician as self reported by applicant/participant/caregiver; or as reported or documented by a physician, or someone working under physician's orders.

Gestational Age (weeks) Infant was born at...	Birth weight (grams) Greater than...	Birth weight (lbs-oz) Greater than...
40	4000	9-0
39	3750	8-3
38	3500	7-11
37	3300	7-4
36	3100	6-13
35	2900	6-6
34	2700	5-15
33	2500	5-8
32	2300	5-1
31	2100	4-10
30	1900	4-3
29	1700	3-12

Source: References 4 and 5

Participant category and priority level

Category	Priority	High Risk
Infants	I	N

Continued on next page

153 Large for Gestational Age, Continued

Documentation

Enter mom's ID# and answer "yes" to "Mom on WIC" in screen 105 in infant record.
Enter LMP or most current EDD in screen 103.
Enter Date of Actual Delivery in screen 103.
Enter Birth Weight in screen 105.
NRF #153 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if:
- "Mom on WIC" is marked in screen 105 in infant record

AND
- gestational age at birth > 90th percentile based on the above chart.

Must be manually selected if diagnosed by a physician.

Counseling at certification

Explain potential risks of LGA:
- childhood/adult obesity
- developmental or intellectual retardation
- if also premature, higher mortality and morbidity rates

Explain expected growth pattern:
- infants should follow an individually appropriate growth curve

Review appropriate infant feeding:
- encourage breastfeeding
- explain appropriate calorie level and nutrient intake to encourage growth
- delay solids until the infant is developmentally ready

Suggested handouts

Infant Feeding Guide
The First 12 Months

Follow up and assessment guidelines

Appropriate nutrition education at each visit.

Continued on next page

153 Large for Gestational Age, Continued

Justification

Infant mortality rates are higher among full-term infants who weigh > 4,000 g (> 9 lbs) than for infants weighing between 3,000 and 4,000 g (6.6 and 8.8 lbs). Oversized infants are usually born at term; however, preterm infants with weights high for gestational age also have significantly higher mortality rates than infants with comparable weights born at term. Large for Gestational Age may be a result of maternal diabetes (which may or may not have been diagnosed before or during pregnancy) and may result in obesity in childhood that may extend into adult life.

Very large infants regardless of their gestational age, have a higher incidence of birth injuries and congenital anomalies (especially congenital heart disease) and developmental and intellectual retardation. When large for gestational age occurs with pre-term birth, the mortality risk is higher than when either condition exists alone.

Justification for high risk

Not applicable

References

1. Behrman, R., et al.: Nelson Textbook of Pediatrics; 13th ed.; 1987; p.384.
2. Babson, SG, Benda, GI: Journal of Pediatrics; 1976; 89:815.
3. Lubchenco, LO, Hansman, C., and Boyd, E.: Pediatrics; 37:403.
4. Battaglia FC, Lubchenco, LO: A practical classification of newborn infants by weights and gestational age. J Pediatr 1967; 71:159-163.
5. Intermountain Newborn Intensive Care Center Perinatal Growth Chart.

201 Low Hematocrit/Low Hemoglobin

Definition/ cut-off value

Hematocrit or hemoglobin concentration below the 95 percent confidence interval (i.e., below the .025 percentile) for healthy, well-nourished individuals of the same age, sex, and stage of pregnancy.

Cut-off values are adjusted for age, gender, trimester of pregnancy, smoking and altitude. Cut-off values are based on the levels established by the Center for Disease Control and Prevention (CDC).

High risk = hematocrit > 3 percent below anemia cutoff or hemoglobin > 1 gm/dL below anemia cutoff. Example: If anemia is < 34.5% then high risk will be flagged when the hematocrit is < 31.5%.

Altitude levels

Use the altitude level for the clinic area where the applicant lives. Altitude levels of Utah's WIC clinics are summarized in the table below.

District	County/Clinic	Altitude
Bear River	Logan	4526
Bear River	Brigham City	4220
Bear River	Tremonton	4320
Bear River	Randolph	6442
Bear River	Park Valley	5540
Central	Nephi	5119
Central	Eureka	6442
Central	*West Desert	7000
Central	Delta	4650
Central	Fillmore	5061
Central	Junction	6000
Central	Loa	7020
Central	*Bullfrog	5200
Central	*Hanksville	4666
Central	Manti	5800
Central	Mt. Pleasant	5700
Central	Richfield	5303
Central	Salina	5160
Davis	all clinics	4231
Salt Lake	all clinics	4366

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Altitude levels (continued)

District	County/Clinic	Altitude
Southeast	Moab	4000
Southeast	Price	5567
Southeast	Green River	4000
Southeast	East Carbon	6300
Southeast	Castle Dale	5660
Southeast	Blanding	6000
Southeast	Monticello	7050
Southwest	St. George	2880
Southwest	Mesquite	1600
Southwest	Hurricane	3266
Southwest	Hildale	5200
Southwest	Beaver	5895
Southwest	Panguitch	6670
Southwest	Cedar City	5800
Southwest	Parawon	5800
Southwest	Kanab	4925
Southwest	Escalante	5258
Summit	*Coalville	5300
Summit	Park City	6900
Summit	*Kamas	6400
Teen Mom	Teen Mom	4366
Tooele	Wendover	4240
Tooele	Dugway	4837
Tooele	Tooele	5150
Tri-County	Vernal	5331
Tri-County	*Manila	6295
Tri-County	*Altamont	6375
Tri-County	Roosevelt	5280
Tri-County	Duchesne	5515
Utah County	all clinics	4553
Ute Tribe	Ute Tribe	5331
Wasatch	Wasatch	5593
Weber/Morgan	Ogden	4370
Weber/Morgan	Morgan	5068

*Note: Community is at a different altitude level than the WIC clinic. Assign nutrition risk based on participant's community of residence.

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Hematocrit/ hemoglobin values

Use the hematocrit/hemoglobin value listed in the table below for the clinic area where the applicant lives adjusted for trimester of pregnancy (for pregnant women), smoking (for women), and age (for children).

Hematocrit Values

Altitude	Smoking	1st trimester Hct <	2nd trimester Hct <	3rd trimester Hct <	Postpartum Hct <	Infant 7- < 12 mo Hct <	Child 1-2 yrs Hct <	Child 2-< 5 yrs Hct <
0-2999 ft	Non smoker	33.0	32.0	33.0	35.7	32.9	32.9	33.0
	< 1 pack/day	34.0	33.0	34.0	36.7			
	1-<2 pks/day	34.5	33.5	34.5	37.2			
	≥ 2 pks/day	35.0	34.0	35.0	37.7			
3000-3999 ft	Non smoker	33.5	32.5	33.5	36.2	33.4	33.4	33.5
	< 1 pack/day	34.5	33.5	34.5	37.2			
	1-<2 pks/day	35.0	34.0	35.0	37.7			
	≥ 2 pks/day	35.5	34.5	35.5	38.2			
4000-4999 ft	Non smoker	34.0	33.0	34.0	36.7	33.9	33.9	34.0
	< 1 pack/day	35.0	34.0	35.0	37.7			
	1-<2 pks/day	35.5	34.5	35.5	38.2			
	≥ 2 pks/day	36.0	35.0	36.0	38.7			
5000-5999 ft	Non smoker	34.5	33.5	34.5	37.2	34.4	34.4	34.5
	< 1 pack/day	35.5	34.5	35.5	38.2			
	1-<2 pks/day	36.0	35.0	36.0	38.7			
	≥ 2 pks/day	36.5	35.5	36.5	39.2			
6000-6999 ft	Non smoker	35.0	34.0	35.0	37.7	34.9	34.9	35.0
	< 1 pack/day	36.0	35.0	36.0	38.7			
	1-<2 pks/day	36.5	35.5	36.5	39.2			
	≥ 2 pks/day	37.0	36.0	37.0	39.7			
7000-7999 ft	Non smoker	36.0	35.0	36.0	38.7	35.9	35.9	36.0
	< 1 pack/day	37.0	36.0	37.0	39.7			
	1-<2 pks/day	37.5	36.5	37.5	40.2			
	≥ 2 pks/day	38.0	37.0	38.0	40.7			

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Hemoglobin Values

Altitude	Smoking	1st trimester Hgb <	2nd trimester Hgb <	3rd trimester Hgb <	Postpartum Hgb <	Infant 7- < 12 mo Hgb <	Child 1-2 yrs Hgb <	Child 2-< 5 yrs Hgb <
0-2999 ft	Non smoker	11.0	10.5	11.0	12.0	11.0	11.0	11.1
	< 1 pack/day	11.3	10.8	11.3	12.3			
	1-<2 pks/day	11.5	11.0	11.5	12.5			
	≥ 2 pks/day	11.7	11.2	11.7	12.7			
3000-3999 ft	Non smoker	11.2	10.7	11.2	12.2	11.2	11.2	11.3
	< 1 pack/day	11.5	11.0	11.5	12.5			
	1-<2 pks/day	11.7	11.2	11.7	12.7			
	≥ 2 pks/day	11.9	11.4	11.9	12.9			
4000-4999 ft	Non smoker	11.3	10.8	11.3	12.3	11.3	11.3	11.4
	< 1 pack/day	11.6	11.1	11.6	12.6			
	1-<2 pks/day	11.8	11.3	11.8	12.8			
	≥ 2 pks/day	12.0	11.5	12.0	13.0			
5000-5999 ft	Non smoker	11.5	11.0	11.5	12.5	11.5	11.5	11.6
	< 1 pack/day	11.8	11.3	11.8	12.8			
	1-<2 pks/day	12.0	11.5	12.0	13.0			
	≥ 2 pks/day	12.2	11.7	12.2	13.2			
6000-6999 ft	Non smoker	11.7	11.2	11.7	12.7	11.7	11.7	11.8
	< 1 pack/day	12.0	11.5	12.0	13.0			
	1-<2 pks/day	12.2	11.7	12.2	13.2			
	≥ 2 pks/day	12.4	11.9	12.4	13.4			
7000-7999 ft	Non smoker	12.0	11.5	12.0	13.0	12.0	12.0	12.1
	< 1 pack/day	12.3	11.8	12.3	13.3			
	1-<2 pks/day	12.5	12.0	12.5	13.5			
	≥ 2 pks/day	12.5	12.2	12.7	13.7			

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	For all categories:
Breastfeeding	I	hematocrit > 3%ile
Postpartum	IV	OR
Infant	I	hemoglobin > 1 g/dl
Children	III	below cut-off

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Clarification

For pregnant women being assessed for iron deficiency anemia, bloodwork must be evaluated using trimester values established by CDC. Thus, a pregnant woman would be certified, based on the trimester in which her bloodwork was taken.

CDC defines a trimester as a term of three months in the prenatal gestation period with the specific trimester defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks

CDC begins the calculation of weeks starting with the first day of the last menstrual period

Documentation

Enter category in screen 102.
Enter date of birth in screen 102.
Enter Last Menstrual Period (LMP) in screen 103.
Enter current smoking status in screen 104.
Enter hematocrit or hemoglobin level in screen 104 (women) or 105 (infants/children).
Enter anthro date if different from certification date in screen 104 (women) or 105 (infants/children).
NRF #201 auto assigned by UWIN.
If high risk, document High Risk Care Plan in participant's chart.

Suggested components to assess:

- hematocrit/hemoglobin level
- history of anemia
- presence of current illnesses (upper respiratory infection, otitis media, and diarrhea may decrease hematocrit level)
- current medical intervention
- current dietary intake including quality and quantity of high iron foods
- use of vitamin/mineral supplements including prenatal vitamins

RD must document management of care plan

Document referrals in screen 106.
If high risk, schedule appropriate nutrition education or individual counseling at next visit.
If not high risk, schedule appropriate nutrition education at next visit.

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Parameters for auto assign

Will be auto assigned based on age, gender, trimester of pregnancy, smoking and clinic altitude.
Will be auto assigned as high risk if hematocrit is > 3 % below anemia cutoff or hemoglobin is > 1 g/dl below anemia cut-off.
When a participant is transferred, the auto assign is set according to current clinic cut-off values.

Note: Risk for anemia must be interpreted using the altitude level where the participant/applicant resides. If this differs from the clinic altitude level, CPA may need to manually

- assign risk (participant resides at a higher altitude level than the clinic), OR
- unassign risk (participant resides at a lower altitude level than the clinic).

201 Low Hematocrit/Low Hemoglobin, Continued

Counseling guidelines

Explain the hematocrit test does not measure the iron level directly and does not distinguish between different types of anemia. However, since iron deficiency anemia is common among women and children, we would like to help improve their iron status and see if it helps improve their hematocrit level.
Explain the participant's hematocrit level in relation to the expected level.
Review current dietary intake including quality and quantity of high iron foods.
Check to see if participant has been ill (upper respiratory tract infections, otitis media, and diarrhea can decrease hematocrit/hemoglobin levels).
Recommend increased consumption of high iron foods.
Emphasize consumption of WIC foods high in iron (cereal, dry beans, peanut butter).
Recommend consumption of good source of vitamin C with iron (example: WIC juice with cereal).
Recommend pregnant and postpartum women continue to take prenatal vitamins under MDs supervision.
If dietary intake is unlikely to meet iron needs, recommend participant discuss taking an iron supplement (3 mg/kg per day) with their MD.
Iron deficiency anemia is confirmed if hematocrit level increases 3% (1 gm/dL for hemoglobin) 4 weeks after iron treatment. Treatment should be continued 2 more months and then hematocrit repeated.
If hematocrit does not respond to iron treatment, additional lab tests are warranted to determine cause of anemia.

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Suggested handouts

Iron
Vitamin C
Daily Food Guide - Children/Pregnant/Breastfeeding/Postpartum
Infant Feeding Guide

Follow up and assessment guidelines

If pregnant, weight gain plotted and assessed at each clinic visit.
If high risk, individual assessment with a Registered Dietitian.

- reassess growth/weight gain/status
- reassess dietary/caloric intake
- assess compliance with recommendations
- reassess hematocrit level
- reassess intake of iron
- document if participant followed through on referrals
- if hematocrit level has improved:
  - encourage continued consumption of high iron foods and/or supplement
  - recommend participant have hematocrit rechecked in 2 months to ensure anemia has been resolved (this does not have to be done in the WIC clinic)

- if hematocrit level has not improved and participant reports adequate iron intake:
  - refer to health care provider for additional testing

If not high risk, appropriate nutrition education at each visit.
Recheck hematocrit at next certification visit.

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

Justification

Hemoglobin (Hb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hb and Hct reflect the amount of functional iron in the body. Changes in Hb concentration and Hct occur at the late stages of iron deficiency. While neither an Hb or Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

Justification for high risk

Anemia is one of the most preventable and treatable nutritional deficiencies. It is also one of the most common. The WIC nutritionist can play an important role in decreasing the prevalence of this condition in women and children by:

- providing a high iron food package
- counseling
- follow-up hematocrit testing

Continued on next page

201 Low Hematocrit/Low Hemoglobin, Continued

References

1. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990; pp. 284-285.

2. Institute of Medicine: Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among US Children and Women of Childbearing Age; 1993.

3. Institute of Medicine: WIC Nutrition Risk Criteria: A Scientific Assessment; 1996; pp. 154-159.

4. Morbidity and Mortality Weekly Report: CDC Criteria for Anemia in Children and Childbearing-Aged Women; April 3, 1998; Vol. 47; No. RR-3.

5. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User's Manual. Atlanta, GA: CDC; 1994; page 8-3.

211 Elevated Blood Lead Levels

Definition/ cut-off value

Blood lead level of = 10 µg/deciliter within the past 12 months.

Lead level must be tested and documented by a qualified person in a local health department, physician's office, hospital, or lead treatment program.

Participant category and priority level

Category	Priority	High Risk
Pregnant	I	N
Breastfeeding	I	N
Postpartum	IV	N
Infants	I	N
Children	III	N

Documentation

Document source of lead testing in participant's chart.
Enter blood lead level in screen 104 (women) or 105 (infants/children).
NRF #211 auto assigned by UWIN.
Document referrals in screen 106.
Schedule appropriate nutrition education at next visit.

Parameters for auto assign

Will be auto assigned if blood lead level = 10 µg/dl.

Continued on next page

211 Elevated Blood Lead Levels, Continued

Counseling guidelines

Refer to lead treatment center or physician for comprehensive follow-up.
Explain potential risks to participant:

- Women:
  - lead crosses the placenta and can be detrimental to a developing fetus
  - lead stored in bone is mobilized during lactation, however effect is unknown
  - increased blood pressure
- Infants, Children and Women:
  - neurobehavioral and cognitive impacts including lower IQ
  - damage to the central nervous system, kidneys, and hematopoietic (formation of red blood cells) systems
  - increased risk of coma, convulsions, and death (at extremely high levels)

Inform participant of potential sources of lead:

- residual deposits (soil dust, old paint and plaster)
  - all homes built before 1978 have some lead based paint
  - homes build before 1960 have the highest levels of lead based paint
  - the more intact the paint is the less the risk of exposure
  - corners and doorways and windows tend to deteriorate from friction even if painted over
- occupational exposure
- lead containing imported containers used for serving or storing food or beverages
- lead containing jewelry (particularly inexpensive imported necklaces that infants or children may put in their mouths)

  *note - gasoline, paint, and soldered cans no longer contain elevated levels of lead in the US

Continued on next page

211 Elevated Blood Lead Levels, Continued

Counseling guidelines, (continued)

Screen for Pica (may consume lead paint chips).
Help participant strategize ways to eliminate lead exposure.
Review dietary intake and make the following recommendations:

- encourage lowfat diet because fat increases absorption of lead
- encourage regular meals because lead absorption is reduced on a full stomach
- encourage consumption of WIC foods high in iron (cereal, beans, peanut butter), vitamin C (juice) and calcium (milk, cheese, beans) to help reduce absorption of lead
- encourage adequate intake of calories, magnesium, zinc, thiamin, and vitamin E as they may also help reduce the absorption of lead. A vitamin supplement may be warranted.

Recommend blood lead level be retested within 12 months.

Suggested handouts

Daily Food Guide - Children/Pregnant/Breastfeeding/Postpartum
Iron
Vitamin C
Calcium
Bean Cuisine

Follow up and assessment guidelines

If pregnant, weight gain plotted and assessed at each clinic visit.
Appropriate nutrition education at each visit.

Continued on next page

211 Elevated Blood Lead Levels, Continued

Justification

Venous blood measurement levels at or above the level identified in CDC published guidelines are associated with harmful effects on health, nutritional status, learning or behavior for everyone. Because published guidelines are currently available only for children, similar thresholds should be used for other participant categories until category-specific guidelines are available from CDC.

Lead poisoning is a persistent, but entirely preventable public health problem in the United States. It is most common in children, but can occur in other groups as well. Blood lead levels have been declining in the U.S. population as a whole in recent years, but children remain at risk. Children absorb lead more readily than adults and children's developing nervous systems are particularly vulnerable to lead's effects.

In pregnant women, lead crosses the placenta and can have a detrimental impact on a developing fetus. Adequate intake of calories, calcium, magnesium, iron, zinc, and various vitamins (e.g. thiamin, ascorbic acid, and vitamin E) decreases the absorption of lead in adults and the susceptibility of children to the toxic effects of lead.

Individuals exposed to lead who participant in WIC may benefit from referrals to lead treatment programs, guidance on how to reduce exposure to lead, supplemental food, and the importance of diet in minimizing absorption.

Measurement of blood lead levels replaces the Erythrocyte Protoporphyrin (EP) test as the recommended screening tool because EP is not sensitive enough at blood lead levels below 25 µg/dl. Venous blood samples are preferable, but capillary samples may be more feasible at some sites. Elevated blood lead levels obtained using capillary samples should be confirmed using venous blood. If EP is used, elevated results should be followed by a blood lead test using a venous blood sample. Iron deficiency can also cause elevated EP concentrations. Iron deficiency and lead poisoning often coexist.

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Justification (continued)

Although follow-up screening within less than 12 months is recommended for children with an elevated blood lead level (BLL), CDC recommends blood lead screening for potentially at-risk children at 1 and 2 years of age and between 36 and 72 months of age. The WIC Program can refer children to a health car provider if they had an elevated BLL 12 months ago and no interim follow-up BLL screening.

Justification for high risk

Not applicable

References

1. Institute of Medicine: WIC Nutrition Risk: A Scientific Assessment; 1996; pp. 229-232.

2. Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials; November 1997.

3. CDC Morbidity and Mortality Weekly Report; February 20, 1997.